Regrowing Detroit

Using Urban Agriculture to Revitalize the City

Eric M. James

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Abstract

Regrowing Detroit was an urban revitalization project located in the Middle East Neighborhood northeast of downtown. With a focus upon urban food production, two levels of design were pursued to bring healthy and nutritious food to the residents of this area. Overall, this project was used to educate and empower individuals who are living in poor, urban conditions, to grow their own food and exercise control over their surroundings.

Since the late 1950's the City of Detroit has been in a constant state of decline, losing both citizens and business ventures every year. This exodus from the city has created various levels of urban blight and decay which has trapped families that do not have the economic ability to escape. The Middle East Neighborhood is one such area suffering from unemployment, lack of available food, and extreme vacancy.

The solution presented within this project began with a framework revitalization plan which returned the neighborhood to the target population of 30,000 people. This target was determined by the amount of food able to be grown on site through urban agriculture, and residential space needed for each person. This framework plan was then used to determine the focal point for the site-specific design, which was that of an community park. Through this community park, citizens of the surrounding areas could learn a variety of urban growth methods, the history of urban farming in America, and utilize recreational facilities.

Overall, Regrowing Detroit took a multi-scale approach to ensure true solutions could be implemented at all levels of the community. From communal street orchards to backyard gardens, every citizen, regardless of wealth, background, or culture was given the tools to grow healthy food and enact change upon their surroundings.

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Using Urban Agriculture to Revitalize the City

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Regrowing Detroit: Using Urban Agriculture to Revitalize the City

An Honors Thesis (HONR 499)

by

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Second, I would like to thank my project mentor, Professor Scott Truex. Without your contagious passion for helping struggling communities and urban agriculture I may still have been doing a project about urban forestry. Also, thank you for the vast amount of knowledge you have passed on to me about urban farming. Through that I feel that I have truly found my niche within the design world.

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Introduction

Project Introduction

This is a common property within the Detroit area. Once a beautiful home, it fell victim to economic depravity and disrepair, falling apart at nature's whim.

Over the past 60 years, Detroit, Michigan has wilted from a vibrant, prosperous, and culturally-rich urban center into a vacant, economically-depressed city. At one point, Detroit was home to national musical acts such as Motown Records, the Grand Funk Railroad, and Aretha Franklin. In the realm of sports, this proud city has had its fair share of championship teams. Finally, Detroit was the home of Henry Ford and the birthplace of the automobile. Yet, even in the midst of the rich cultural heritage and economic successes, this city was suffering at the hands of globalization, decline in automobile sales, and the resultant wide-spread vacancy. At its peak in the 1950s, Detroit boasted a population of over 2 million people, yet today it hovers around 700,000. As the population decreased over time, large swaths of land became available for sale, yet there was not enough economic interest in the city for such sales. Therefore, this land was consigned to vacancy and the structures thereon to arson.

Another issue facing Detroit during its decline was the development of "food deserts". A food desert is defined as "urban neighborhoods and rural towns without ready access to fresh, healthy, and affordable food" (USDA). Within a food desert, most families acquire food from fast food chains, convenience stores, or gas stations, due to the fact that no grocery stores exist within the community. Conditions like this are prevalent in Detroit because grocery store chains followed the money as it left the inner-city and moved into the suburbs. Those who did not have the economic power to leave were forced to fend for themselves on the food outlets left behind.

Regrowing Detroit was a project focused upon reversing population decline, providing economic opportunity, and eradicating food deserts. By focusing upon urban agricultural mechanics, economic infusion, and social transformation potential, this project reconnected community members to nature in a productive and enjoyable way. This project also had a number of passive effects upon the community including an increase in ecosystem services and a mitigation of the urban heat island effect. Ending in a revitalized Middle Eastern Neighborhood, and a strong infusion of nature into the community, Regrowing Detroit serves as a model for other urban areas suffering from similar conditions.

Raised bed urban agriculture system on the roof of a building.
Photo credit: sustainablesouthsound.org

The current discourse on urban agriculture is fairly new, yet it rests upon principles set forth centuries ago. With one foot in the past and the other in the present, innovative ideas and studies are being pursued world-wide to better understand exactly what an urban farm can provide an urban setting. While a fast-growing collection of literature embodies this important discourse, this paper will focus on the four key topics associated with a local agriculture system: mechanics of urban farming, economic possibilities of urban food production, human connections with nature, and the resulting social transformations inherent in a local system. While these topics represent many fields and locations of study, this review will specifically focus upon the revitalizing potential and synergistic sustainability that are central to a local urban agricultural system.

With roots in both the Garden City concept, as promoted by Ebenezer Howard in the 1890s, and the Victory Gardens practiced during both World Wars, the urban agricultural movement has been cyclically embraced and dismissed many throughout modern history (Thibert 350). Today, urban agriculture is often associated with "squatters" and "ineffective land management" as a large portion of land that is used for UA is not actually owned by the farmers (Mendes, et al. 436). The reality is that only about 5.3% of land used for urban agriculture is owned by the farmer(s) or located within a land trust (Brown and Jameton 21). Coupled with the small, but slowly growing, body of literature on urban agriculture available today, urban planners and city officials have been somewhat hesitant to sponsor or support urban farming initiatives. In some areas, zoning codes and urban growth plans actually inhibit urban agriculture, defeating budding movements from the very beginning (Mendes, et al. 436). It is within these seemingly harsh conditions that today's urban farmers are working developing new strategies and tools to fee their communities. This first portion of the literature review will compare and contrast these tools and other logistics involved in urban food production.

Urban Agriculture

With roots in both the Garden City idea, as promoted by Ebenezer Howard, and the Victory Gardens practiced during both World Wars, the urban agricultural movement has been embraced and dismissed many times throughout history (Thibert 350). Today, urban agriculture is often associated with "squatters" and "ineffective land management" as a large portion of land that is used for UA is land not actually owned by the farmers (Mendes, et al. 436). The reality is that only about 5.3% of land used for urban agriculture is owned by the farmer(s) or is located within a land trust (Brown and Jameton 21). Coupled with the fact that there is only a small body of literature on urban agriculture available today, urban planners and city officials have been somewhat hesitant to sponsor or support urban farming initiatives. In some areas, zoning codes and urban growth plans actually inhibit urban agriculture, defeating budding movements from the very beginning (Mendes, et al. 436). It is within these seemingly harsh conditions that modern urban farmers are working today with the many tools available to them. This first portion of the literature review will compare and contrast these tools and other mechanics involved in urban food production.

Mechanics of Urban Agriculture

The easiest way to provide an overview of the mechanics of urban agriculture is by subdividing the topics into the who, what, and where things are being done the way they are. The following will be a cursory look into the vast and complex systems involved in urban agriculture.

Who

The "who" of urban agriculture is composed of a variety of individuals from all walks of life. Representing the public, private, and non-profit sectors, anyone from city governments to individual homeowners can enjoy the benefits of urban agriculture. Yet, individuals are the most essential part of the system. Whether at home or in a community garden, individual urban farmers are the cogs that hold the localized food system together. While a city may have a number of commercialized urban farms at work within its border, individual farmers in a community garden provide the conscious link between vacant spaces and bountiful food production. Around the world, motivated individuals in dense urban spaces are rekindling urban agricultural systems. These "guerilla gardeners" have been responsible for a variety of food movements from Paris, to Toronto, and even here in the United States (Cockrall-King 85).

Who

The "who" of urban agriculture is composed of a variety of individuals from all walks of life. Representing the public, private, and non-profit sectors, anyone from city governments to individual homeowners can enjoy the benefits of urban agriculture. Yet, the most essential part of the system is the individual. Whether it is at home or in a community garden, the individual urban farmers are the cogs that hold the localized food system together. While a city may have a number of commercialized urban farms at work within its border, the individual farmer in a community garden provides the conscious link between vacant spaces and bountiful food production. Around the world, it is falling to motivated individuals in densely urban spaces to begin or rekindle urban agricultural systems. These "guerilla gardeners" have been responsible for a variety of food movements from Paris, to Toronto, and even here in the United States (Cockrall-King 85).

Local governments are slower, yet more powerful players in urban agriculture. When the political leadership of a city or a region joins with its citizenry to support urban farming initiatives, the result is remarkable food production and social growth. A prime example of this type of municipal support is Vancouver, British Columbia. Since taking office, Mayor Gregor Robertson has fully supported sustainability and urban agriculture, ultimately vowing to make Vancouver the "greenest city" by the year 2020. Focusing on the economy, supportive communities, and human health, he has mandated that at least 25% of all civic land be converted to edible, food-producing landscapes (Cockrall-King 159).

Also in the realm of government, yet at a drastically different scale, is the work of Michelle Obama. As the current First Lady of the United States, she is using her incredible influence for nutritional and other food-related issues. Focusing on school food programs and their health impacts, First Lady Obama has become a major advocate for locally grown and nutritionally rich foods, even going so far as installing a vegetable garden at the White House. Also, while traveling around the nation, she is urging schools to adopt policies that remove unhealthy foods from lunch menus and provide more fruits and vegetables. And where better to get such healthy food than from school gardens, local community gardens, and a handful of other urban agriculture initiatives.

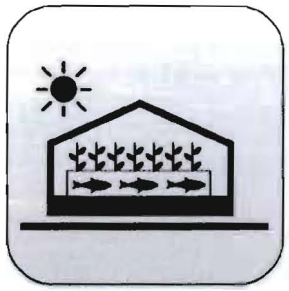
The final areas that have a large influence over urban agriculture are businesses and non-profit charity organizations. Together, these urban entities have more monetary power and social influence than governments and individuals combined. Often, urban farming initiatives can either be made or broken by the whim of a local business or charity group. The following are two examples of businesses that have recognized and are taking advantage of urban food production.

Hantz Woodland/Hantz Farms: This urban agricultural initiative is a philanthropic business venture by the Hantz Group, a multi-faceted corporation based in Detroit. This initiative came into being when the Hantz Group allocated $30 million specifically to design and construct up to a 1,000-acre urban farming establishment. With the goal of improving the community in which they work, Hantz has been purchasing large swaths of vacant land within an ailing Detroit neighborhood and preparing it for cultivation. They are constructing areas of community gardening, an orchard, a pine forest to grow Christmas trees, and many other uses. Today, they have 200 acres of land cleaned and planted, but they plan to expand in the future. (Hantz Woodlands)

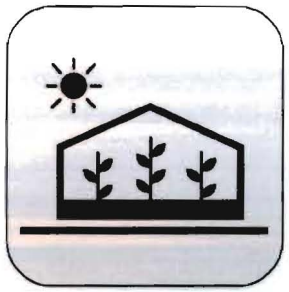
Earthworks Urban Farm: This urban farm was established by the Capuchin Food Kitchen in association with the Capuchins of the Province of St. Joseph in Detroit. This religious organization has been operating the food kitchen for decades in the Detroit area and began growing food in 1997. While most food grown here is used within the kitchen, the volunteers who come and work are also allowed a portion of the yield to take home to their families. This system is largely philanthropic-based and depends heavily upon donations of time, money, and resources to stay in operation. (Earthworks Farms)

What

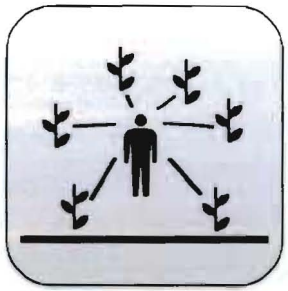
Urban agriculture is a living and shifting entity within a densely packed context. Critical thinkers and self-driven pioneers of the craft are developing new and more efficient growing techniques to help the delicate process of food growth occur within rough cityscapes. With a variety of growing methods available, there are opportunities for everyone to participate. The following is a list of growing styles that range from most work intensive at the beginning to the least at the end.



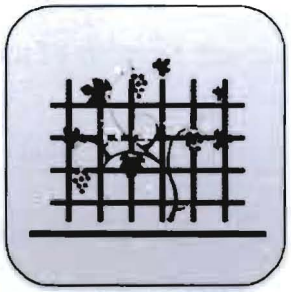
Aquaponics systems offer opportunities for massive food growth with a relatively small footprint. This closed-loop, indoor system produces fish and vegetables. The system utilizes fish manure to fertilize grow beds via the water the fish swim in. Simultaneously, the plants within the grow beds filter waste from the water, cleaning it for the fish to live in. With the ability to be implemented in a greenhouse system or existing building, this strategy is a flexible, highly efficient way to retrofit any underutilized space.



A *greenhouse* is an easy way to alter a local microclimate and extend the growing season. With an input of climate-maintaining technology, the right temperature balance can be achieved for year-round, intensive growth, which significantly increases yields. Another advantage to a greenhouse system is protection from natural elements such as storms, frost, and soil erosion. Finally, greenhouses offer the opportunity for vertical layers of growth, increasing the yield per square foot. With a flexibility of sizes, this strategy is good for both backyard implementation and large-scale, commercial growth.

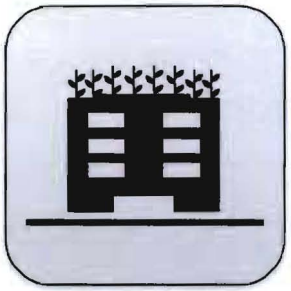


Small Plot Intensive (SPIN) Farming is an innovative way that homeowners can use in their yards for food production, without the work involved in gardening. This strategy utilizes multiple homes and empty lots for food production, each being cared for by one full-time urban farmer. Each lot included in this farmer's work area will receive a portion of the harvest while the rest will be funneled into a Community-Supported Agriculture (CSA) system, or locally sourced restaurant. This type of system will provide money for the farmer's salary along with the materials needed to keep the program productive. In her book *Food and the City*, Jennifer Cockrall-King explains that an urban SPIN farmer can make between $27,000 and $72,000 annually, depending upon crops grown, density of growth, and local market (185). SPIN farming is an environmentally healthy and productive alternative for traditional lawns and unused urban space.



With urban space being at a premium today, *Vertical Gardening* utilizes wall surfaces, trellis structures, and a variety of innovative systems to install food-producing plants both indoors and outdoors. Vertical strategies range from stacked rows of store-bought window boxes to high-tech growing systems. The challenge in this strategy lies in retaining moisture. However, if these systems are possible, vertical gardening transforms often bare and harsh urban spaces into lush, food producing areas.

The strategies involved in *Community Gardening* can be approached in two ways. The first method is through *Allotment Gardens*, a system which rents predetermined plots to local gardeners. This style is good for areas where dwellings have no yards, giving residents an area away from home for food production. The second type is *Communal Gardening*, where a group cooperative or a local charity sets up a large garden and any person who helps with the garden is able to take a portion of the harvest. Through either method, the surrounding community greatly benefits from heightened social connection and communal food production.



The strategy of *Rooftop Gardening* is simply installing food-producing plants on a flat roof structure. Using the same techniques associated with a green roof, this system is most appropriate for newer structures or structural retrofit buildings due to the added roof weight. With a large installation cost, this strategy is somewhat difficult to implement; however, by the building owner and the community gain many benefits, including reduced heating/cooling costs through increased thermal mass, increased on-site stormwater management, and above all, food production.

One of the easiest forms of urban agriculture is the *Backyard Garden* strategy. As the name says, this technique is a food-producing garden around a home. Whether through raised beds or in-ground, this strategy is the most flexible in terms of size, content, and upkeep because all the choices are made by the homeowner. For any dwelling with a back, front, or side yard, this style of urban farming is somewhat labor-intensive, yet very rewarding.

Often the most underutilized spaces in a city are the municipal Right of Ways (ROWs). Through the use of *Productive Streetscapes*, a city can transform these barren grass strips that line each street into a functional tree canopy. With the use of fruit- and nut-bearing trees, these areas can produce food that can either be picked by the casual passerby or harvested and sold by the city. Also, in addition to food production, this is a great way to beautify the street and increase adjacent home values. Whatever the end goal is, this is a cost-effective way for a local government to transform an urban streetscape and provide food for its citizenry.

Where

The various urban agricultural techniques being developed are only useful if people have places to implement them. However, Detroit has increasing amounts of space where urban farming can make profound differences. As large, post-industrial cities are shrinking today, governments are scrambling to find uses for the large swaths of land that are becoming available and trying to slow the outward flow of their citizens. Regrowing Detroit uses a variety of spaces that can be found in any city worldwide, yet are abundant within the project site. These areas include vacant/abandoned lots, public land, municipal right of ways (ROWs), and sites with large areas of underutilized land. Each area has its own issues, yet if those concerns can be circumvented, these are prime growing sites with high community value.

Even the most complete urban centers still have vacant land, but the difference between cities is whether this vacancy was caused by a failing economy or simply a transition from one land use to another. The case in Detroit is one of large-scale economic failure and abandonment, leading to plummeting property values. Ultimately, the new Detroit will grow upon this empty land.

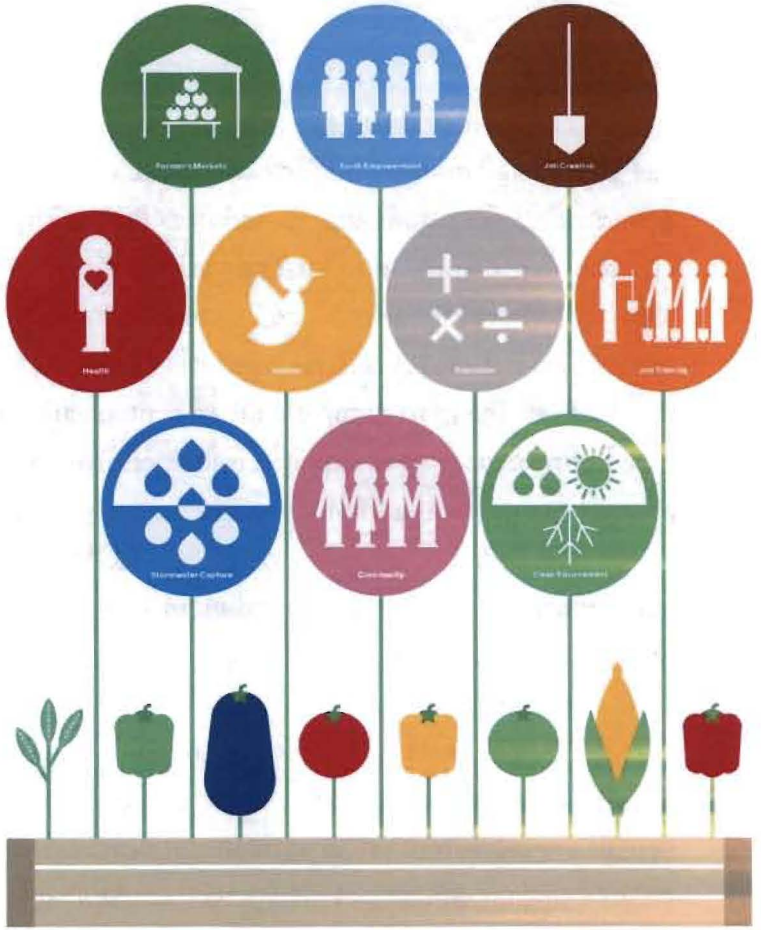
Public lands, including municipal ROWs, are often defined by vast and underutilized lawn space. Whether that lawn is surrounding a monumental governmental building or lining public roads, it is not doing much in the way of community improvement. Regrowing Detroit uses this underutilized land to create productive streetscapes along each of the roads and on municipal campuses to produce food for community members.

The final area where food production was installed is institutional land. Schools, churches, and parks are often community hubs of activity with regular attendees. These groups are important for this project because they will become the workforce to install, maintain, and benefit the most from urban agricultural installations at the sites. Furthermore, school gardens are important educational elements for students, parents, and community members who could also learn in the garden. Cities are full of opportunities for food production, yet many times they are disguised as urban blight.

The current industrialized food supply is integrally tied to the waning energy supply (Ackerman-Leist 30). As fossil fuel sources continue to run dry, the market is searching for other sources of fuel to power the overwhelming global industry. One source being explored is grain-based ethanol; however, this is causing more harm than good. According to Lester Brown, in his book *Full Planet, Empty Plates*, nearly 1/3 of the U.S. grain harvest was diverted into ethanol production between 2005 and 2008, causing global grain prices to double and millions of people to go hungry (37). Ultimately, "as cheap oil ends, so does globalization, and so does cheap food" (Cockrall-King 62).

Today, average Americans spends roughly 9% of their annual income on food, and about 50% of that is on food "away from home" (Brown 6; Ackerman-Leist 51). This food is cheap, but also devoid of most nutrients and has been shipped from all corners of the globe. As globalization ends, due to peak oil gas prices, and food prices increase, even the most developed countries in the world will suffer the consequences. A local food system and urban agriculture can combat the effect of this increased food cost. Currently, urban agriculture in the United States is a $38 million industry and it is steadily increasing (Brown and Jameton 21). Employing the various urban agricultural techniques detailed above will bring great economic gain. Depending upon the method used, the market, and growing conditions, an urban farmer can profit between $1,000 and $10,000 per acre each year (Brown and Jameton 26). Combine that with a reduced grocery bill because of the food produced in the back yard and reduced medical bills from the increased nutrient intake from healthy food and urban agriculture has a strong economic viability.

Regrowing Detroit also capitalizes on this economic gain as the driver for empowering citizens of this ailing neighborhood. With increased spending power and knowledge of each urban farming technique, residents will be better able to improve their surroundings and increase their quality of life. Also, money generated within this local system will stay within the community as it passes from resident to resident for goods and services rendered.



This is a diagram showing the various social and economic benefits urban agriculture has upon a community.
Photo Credit: http://urbanomnibus.net/redux/wp-content/uploads/2011/01/Five-Borough-Farm-graphic-1.jpg

Similar to the economic impacts of urban agriculture, local food production is also changing communities across the nation in various ways. Economic disparities in many post-industrial cities are causing social issues such as food insecurity, violence, and many health problems. In 2008 and 2009, 50.2 million Americans were considered to be "food insecure," many of them children (Cockrall-King 16). Likewise, the American diet directly leads to disease and dangerous health risks. Today, 1/3 of Americans are considered overweight, while another 1/3 are considered obese. Meanwhile, $1 of every $5 in healthcare costs is spent combating diabetes (Cockrall-King 57). Overall, unhealthy diets and food insecurity plague America due to the nation's industrialized and highly processed food system.

Urban agriculture has a strong influence upon social interactions among community members. It helps increase interaction between neighbors who may have never spoken to each other and creates a community identity if enough people practice urban farming techniques. Furthermore, urban agriculture generates significant community benefits, such as more green space, revitalized brownfields, increased environmental quality, social interaction, and individual improvement (Mendes, et al. 435). With an increased community aesthetic, functional land, and an abundance of healthy food, local residents will begin to lead healthier lifestyles. "Every step we take away from 'home, fresh and seasonal' increases caloric intake and our energy footprint" (Ackerman-Leist 49). Counter to that, the closer a community comes to local, organic, and communal, residents will have a more sustainable and efficient lifestyle.

Regrowing Detroit, through its focus upon establishing a local food system, also transforms the surrounding community. Through an increase in community gardening, backyard food production, and centralized food distribution hubs, this project gets people outside and interacting with each other to produce food in a variety of ways. Furthermore, the project alters the local aesthetic from one of vacancy and deterioration to one of life and vibrancy.

While it may not be recognized by the medical and psychological communities as a "diagnosable disorder," Nature Deficit Disorder (NDD) is a true condition altering the development and activities of children around the world. Across the board, psychologists and child development specialists agree that human brains have evolved for an agrarian and nature-oriented existence from the beginning, and we struggle to adapt to being divided from nature (Louv 101). However, this division from the natural world is happening earlier as each generation becomes increasingly surrounded by technology and indoor activities. This accelerated "alienation" from nature damages childhood development and increases physical and emotional problems within children (Withgott and Brennan 299). Studies have also shown that it is inhibiting children's abilities to learn directly from the natural world itself, leading to conditions such as ADD, ADHD, depression, and many other developmental issues (Driessnack 73). Ultimately, the effects of Nature Deficit Disorder increase within the urban environment.

American biologist and researcher Edward O. Wilson has developed a theory of Biophilia, or the "instinctive love of nature and the emotional bond humans have with other living being on this planet" (Withgott and Brennan 299). Whether this other living being is an animal moving through our neighborhoods or a tree growing at the end of the street, the human subconscious yearns for other living beings. This disconnection from non-human life is another factor that contributes to Nature Deficit Disorder. Recent psychological studies have begun calling today's children the "backseat generation" because of how they travel (Driessnack 73), ferried to and fro in the backseat of the family vehicle, witnessing nature as it flies past them outside the glass. This shift from walking everywhere as a child to being driven from place to place, even places just outside the neighborhood, has altered the way children interact with nature. From the act of walking to a friend's house on the next block over, children used to see and interact with nature as they moved slowly past. However, through the window of a car, nature is reduced to a greenish-brown blur that races by them. When placed into this context, it is easy to see how the fast pace of life and lack of visual connection with nature is causing developmental issues.

Other factors that contribute to Nature Deficit Disorder are technological advancements, such as television/cable and computers, plus concerns about crime, safety, and injuries (Driessnack 73). As videogames, television shows, and movies are become increasingly advanced and easily accessible, the outdoor appeal is lost within the fantasy worlds of game consoles and Hollywood. Children will often turn to games such as Zoo Tycoon and other nature-oriented videogames to feel a connection with nature rather than walking outside.

However, children cannot be the only blame for NDD; parents play a role as well. Further studies have shown that parents and children are more indoors than ever before (Louv 11). Also, there has been a large shift in parenting practices from a time when mothers would let their children roam free until the dinner bell rang to the point today where children are rarely free to leave a parent's sight (Louv 13). This heightened sense of fear and borderline overprotection of children has made it difficult to explore nature beyond their fenced-in backyards. The situation has been created where parents are depriving their children of natural experiences due to fear that they may come home with a scraped knee or a bruised shin.

The psychological decoupling of humans and nature extends to the U.S. food system as well. Many studies have shown that children in urban settings believe the food in grocery stores is made within those very stores (Travaline and Hunold 584). This is not surprising since human interaction has almost been completely phased out of the food acquisition process. Humans no longer see the process by which their food is produced, and with the integration of the "self-checkout" in grocery stores, human interaction in the food system can almost be completely avoided (Cockrall-King 26). The establishment of urban agriculture can remedy both the "decoupling" of humans from food production and Nature Deficit Disorder. When the food production process, in whatever form it takes, is brought to urban areas, children can see where their food comes from. Also, through school educational programs through or local urban farming organizations, children can leave their homes and get their hands dirty cultivating new life in their community. Growing food can dispel the effects of NDD can be dispelled and humans can once again interact with nature.

Project Problem Statement

Regrowing Detroit was a project focused upon reversing population decline, providing economic opportunity, and eradicating food deserts. By focusing upon urban agricultural mechanics, economic infusion, and social transformation potential, this project reconnected community members to nature in a productive and enjoyable way. This project also had a number of passive effects upon the community including an increase in ecosystem services and a mitigation of the urban heat island effect. Ending in a revitalized Middle Eastern Neighborhood, and a strong infusion of nature into the community, Regrowing Detroit serves as a model for other urban areas suffering from similar conditions.

Project Significance

Regrowing Detroit is a significant project because it takes the conventional city, often defined by buildings and hardscape, and transforms it into a softer, more sustainable version of itself. The city's natural environment benefited by increasing areas in which plant materials exist, providing food for both humans and animals alike. Also, the local economy benefited from food-production which created a local system of tradable/saleable commodities. Finally, the local community benefited from the social transformations that come along with urban farming. With the establishment of the local food system, residents all have more interaction with each other, creating a stronger sense of community within this neighborhood. Detroit, overall gained a positive and forward-thinking identity of which its citizenry can be proud of. Ultimately, the urban revitalization and food production elements of this project provided the knowledge, tools, and encouragement for the citizens, political leaders, and businesses to join as one to improve the areas in which they live.

Revitalization Framework

Purpose of Framework Plan

This project needed a Framework Revitalization Plan in order to justify the location selected for the site-specific Community Park. In its predeveloped state, the Middle Eastern neighborhood is significantly vacant and any design constructed within its borders would be severely detached from its surrounding context. In order to create a continuity of design and a purpose for the Park, this Framework Plan detailed the surrounding,restored conditions in which the design will be placed. Overall, this Framework Plan was a cursory study into the food production possibilities and population an area like this could support. Finally, a "kit of parts" was created that could be used to transform the neighborhood from its current conditions into the fully rebuilt form.

Framework Vision Statement

At the framework level, this project revolves around establishing a localized system based on food production, economic possibilities, and social connectivity. Through self-empowerment, food literacy/security, and grassroot collaboration, this neighborhood becomes a primary model for how to revive a vacant, economically-depressed region. Ultimately, using urban agriculture, the power is put in the hands of the people stuck in the area, allowing them to change their situation and grow pride within their surroundings.

Goal #1: *Draw the economic and social success of Eastern Market into the surrounding community*

Objective 1: Provide pedestrian-oriented access from Eastern Market into the surrounding neighborhood.

- Create a flexible trail system revolving around pedestrian movement, urban ecology, and recreation.
- Pedestrian-orientation includes walking, running, riding a bicycle, skateboarding, etc.

Objective 2: Establish gathering areas along the pathway for events and market days

- Gathering areas will include 2 food-oriented market hubs and one central hub.
- Each food hub gathering area will be no more than 15 minutes traveling distance by foot.
- Each gathering area will be a place of food distribution, ultimately gathered from the local growers in the community and sold/bartered to each other and weekly visitors.

Objective 3: Create a user experience that connects all users to healthy and local food sources.

- Ensure access by bus, bike, foot, and automobile including bus stops, bike racks, benches, and limited parking lots.
- Reduce the dependence upon the automobile by limiting parking spaces and emphasizing public transit/alternative transportation modes.

Goal #2: *Restore the population of area to 30,000 people, providing housing, access to healthy food, and economic possibility for everyone.*

Objective 1: Provide each family roughly 1,800 sq. ft. of housing space.

- Each housing types provides anywhere from 1,900 sq. ft. for a single family, stand-alone home to 1,600 sq. ft. per family in a triplex. (see housing prototype designs for more details)
- This amounts to about 22,919,000 sq. ft (526.15 acres) of residential space.

Objective 2: Provide 100% of fruits and vegetables are grown locally in residential lots, greenhouse establishments, aquaponics systems, and urban orchards.

- Utilizing the USDA estimate that the average American eats 1996.3 lbs. of food per year (688.6 lbs of fruits and vegetables annually), around 20,658,000 pounds of food will need to be grown onsite.
- Provide productive streetscapes to be harvested by the casual passerby.
- Establish educational programming through local institutions (ie. Churches, schools, etc.) to train people about home gardening.
- Provide jobs as local, urban farmers to tend larger plots of contiguous, agricultural land.

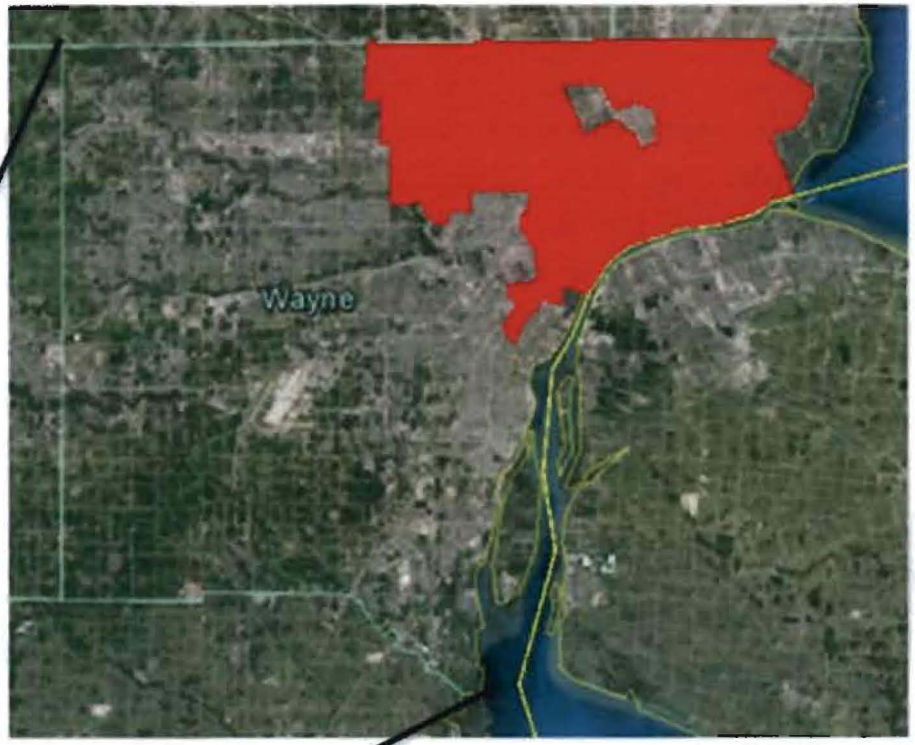
Objective 3: Ensure no residential lot is farther than a 15 minute walk from a local distribution hub or a community garden plot.

Goal #3: *Create a "central" Community Park around the intersection of commercial and green spines.*

Objective 1: Create a economic spine through the site, following the fragmented commercial sections along Chene St.

Objective 2: Create a "central park" in the existing park where the green spine intersects with the commercial spine.

- Provide recreational opportunities, passive activities, and group gathering spaces for community members and visitors.
- Create an identity for the neighborhood in this central park that the residents can be proud of and excited to associate with.



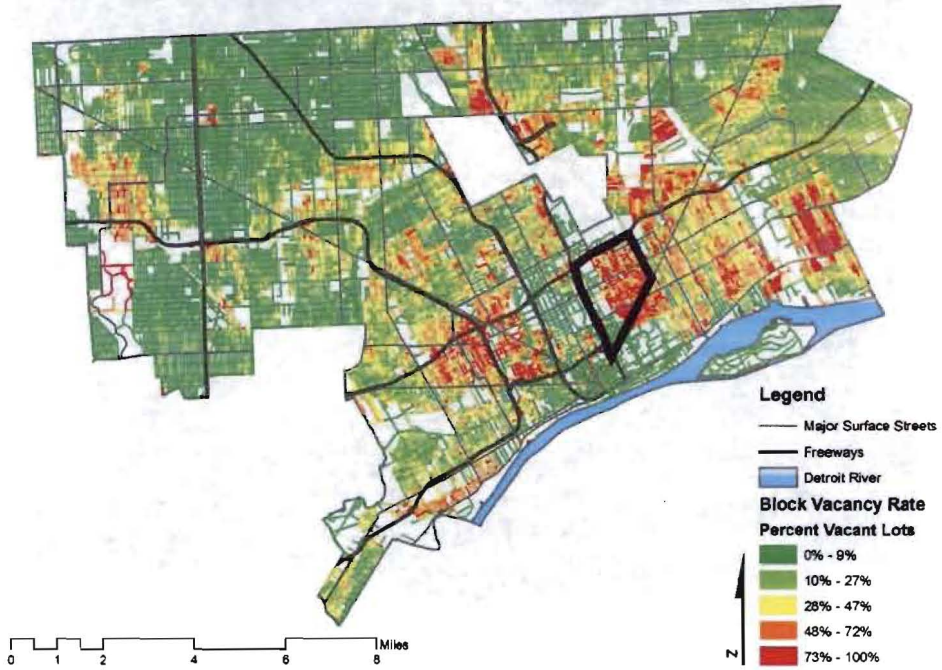
Regrowing Detroit is located within Wayne County, in the State of Michigan. The left image shows Wayne County within the Lower Peninsula of Michigan. The above image shows the City of Detroit within Wayne County.

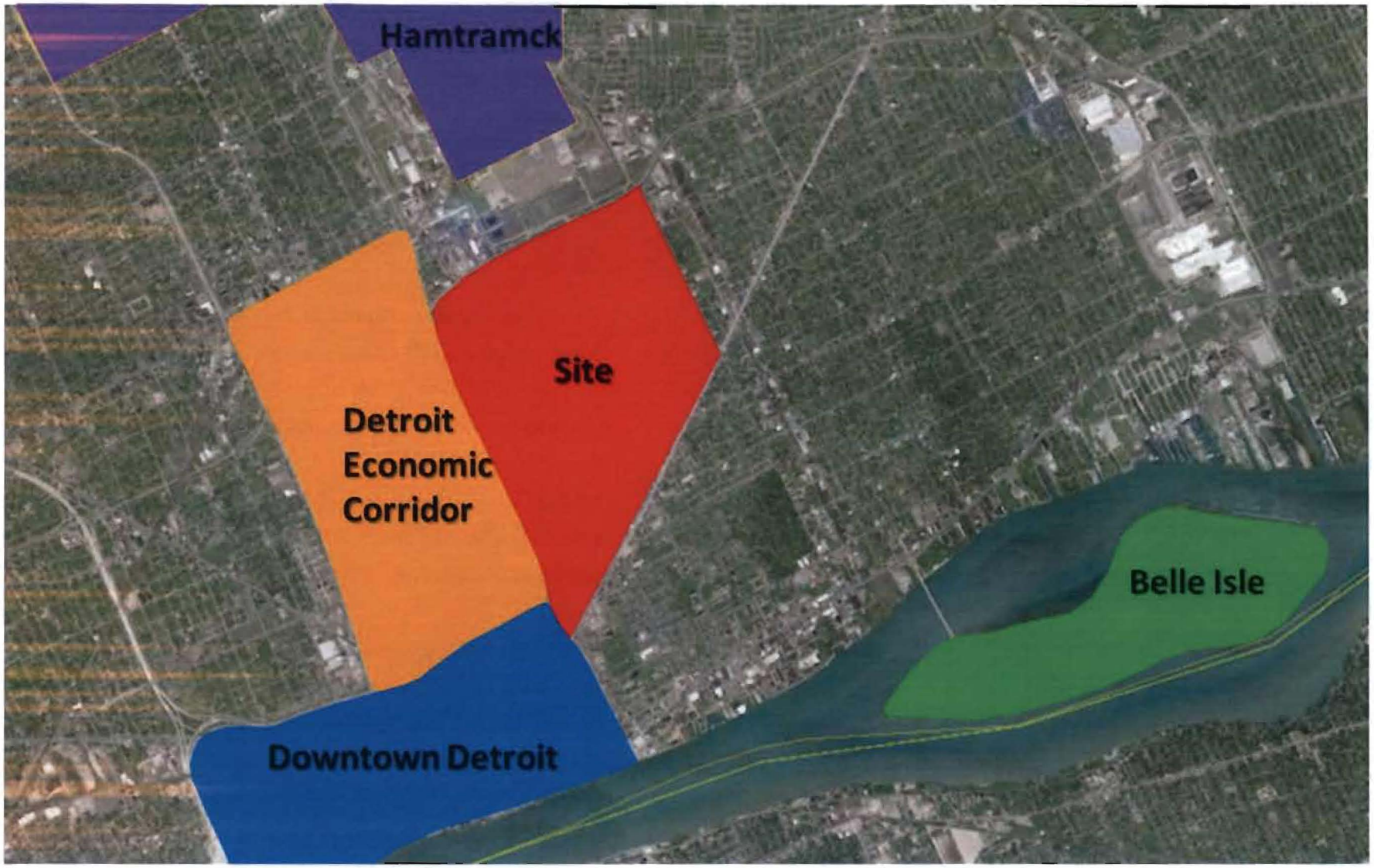
Framework Location

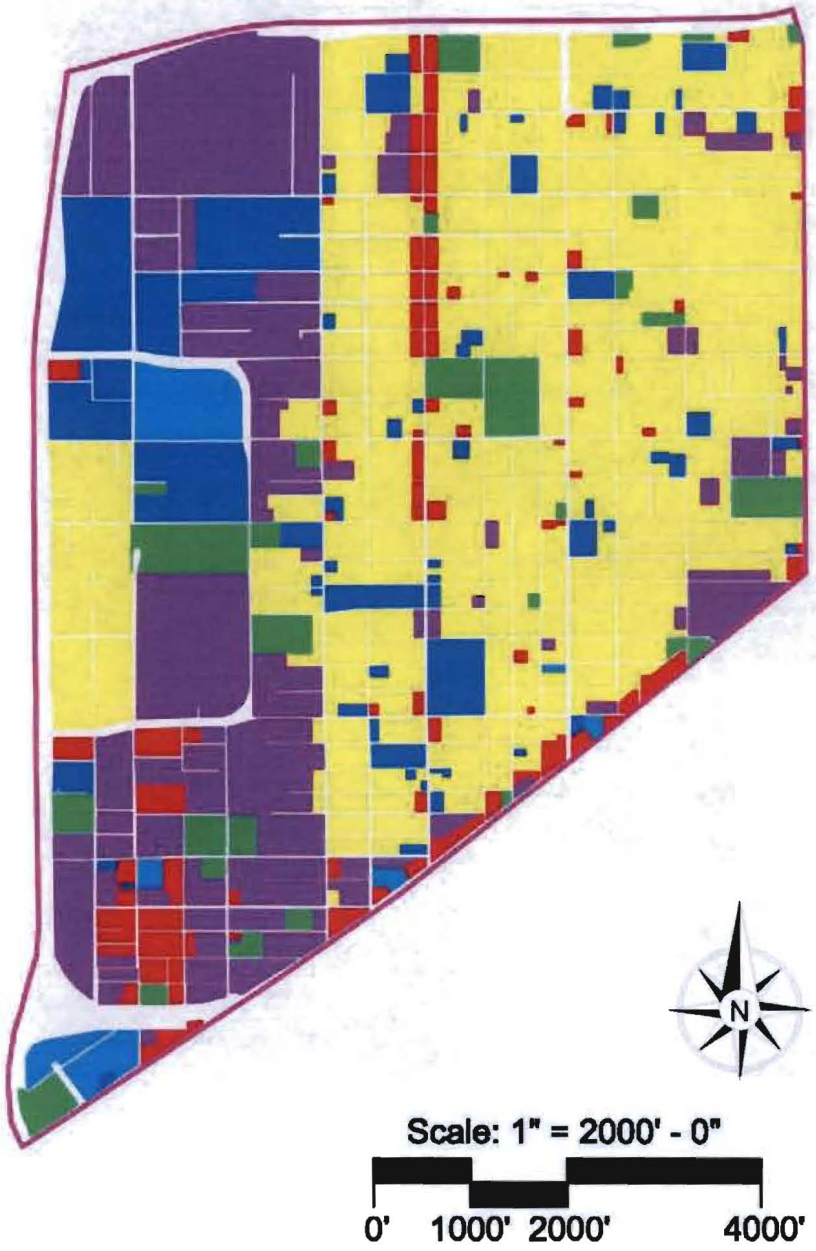
The image to the left shows the Framework Site in the context of Detroit. At this level, the site is about 1,400 acres and is located immediately Northeast of downtown. It is bordered to the north by Interstate 94, to the west by Interstate 75, to the south by Gratiot Avenue, and finally to the east by Mt. Elliott Street.

The image to the right shows a block vacancy rate study for the entirety of Detroit. Three distinct areas are defined by red coloration, signifying that the city blocks in that area are 73% - 100% vacant. The site chosen for Regrowing Detroit is located within one of these vacant areas and is the main reason for why the project is located here.

Vacant Lots As A Percentage Of All Parcels, By Block, 2009




Hamtramck
Site
Detroit
Economic
Corridor
Belle Isle
Downtown Detroit

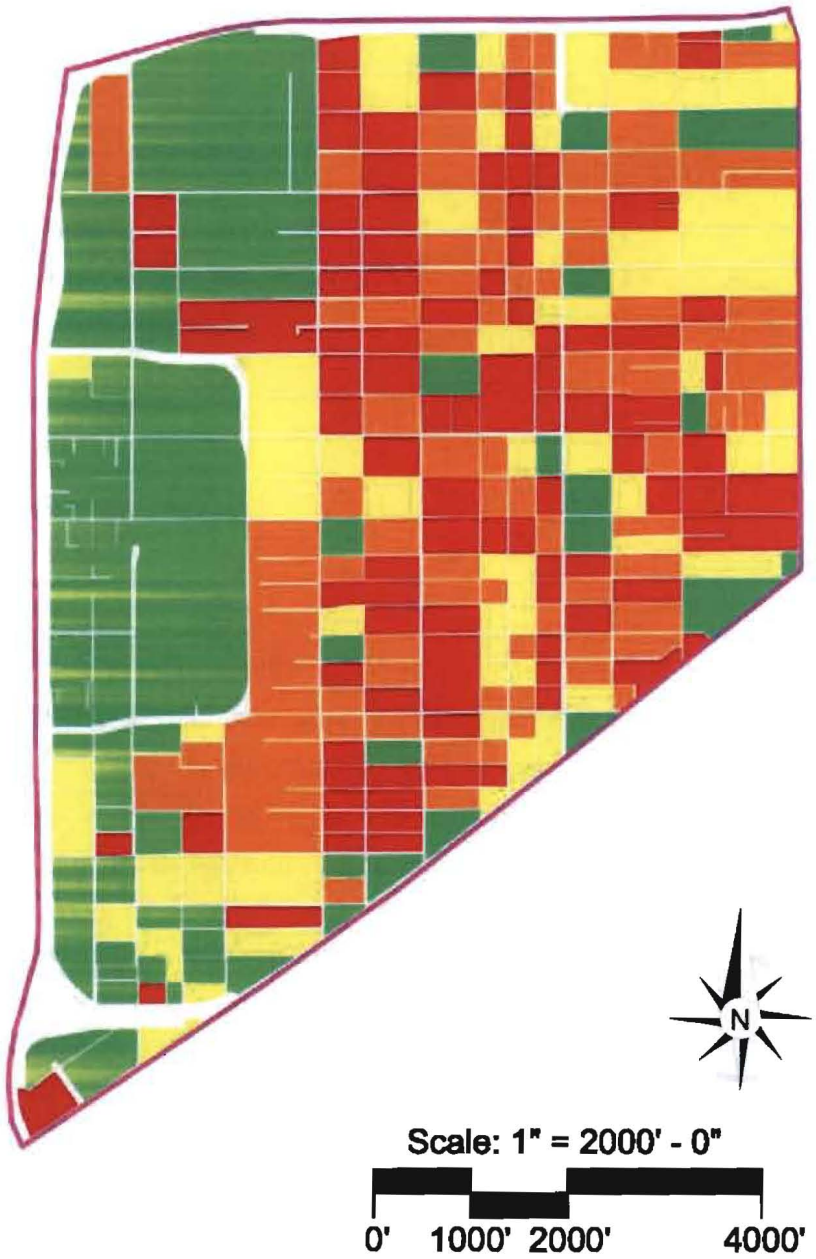


Land Use Key

- = Commercial
- = Green/Open Space
- = Industrial
- = Institutional
- = Office
- = Residential

The historic land use of the framework site was a tapestry of residential neighborhoods, institutional campuses, and industrial complexes. With very few office buildings, this area was largely dependent upon the adjacent industrial entities for employment. Also, due to its proximity to downtown Detroit, the residents of this area could have taken public transportation into work at a variety of jobs. Yet, this area was largely a blue collar, factory-supported community.

The historic land use of this area was important to Regrowing Detroit because it is important to know what has happened in the past to inform what becomes of the future. Many of the decisions that were made regarding revitalized land use were done so based on this map to ensure that similar land use types were restored and any lingering health hazards were avoided. Finally, the large central green space was used as the axial point of the design because of its emptiness as well as it is the center of the site overall.



Block Vacancy Key

= 0% - 24.99%

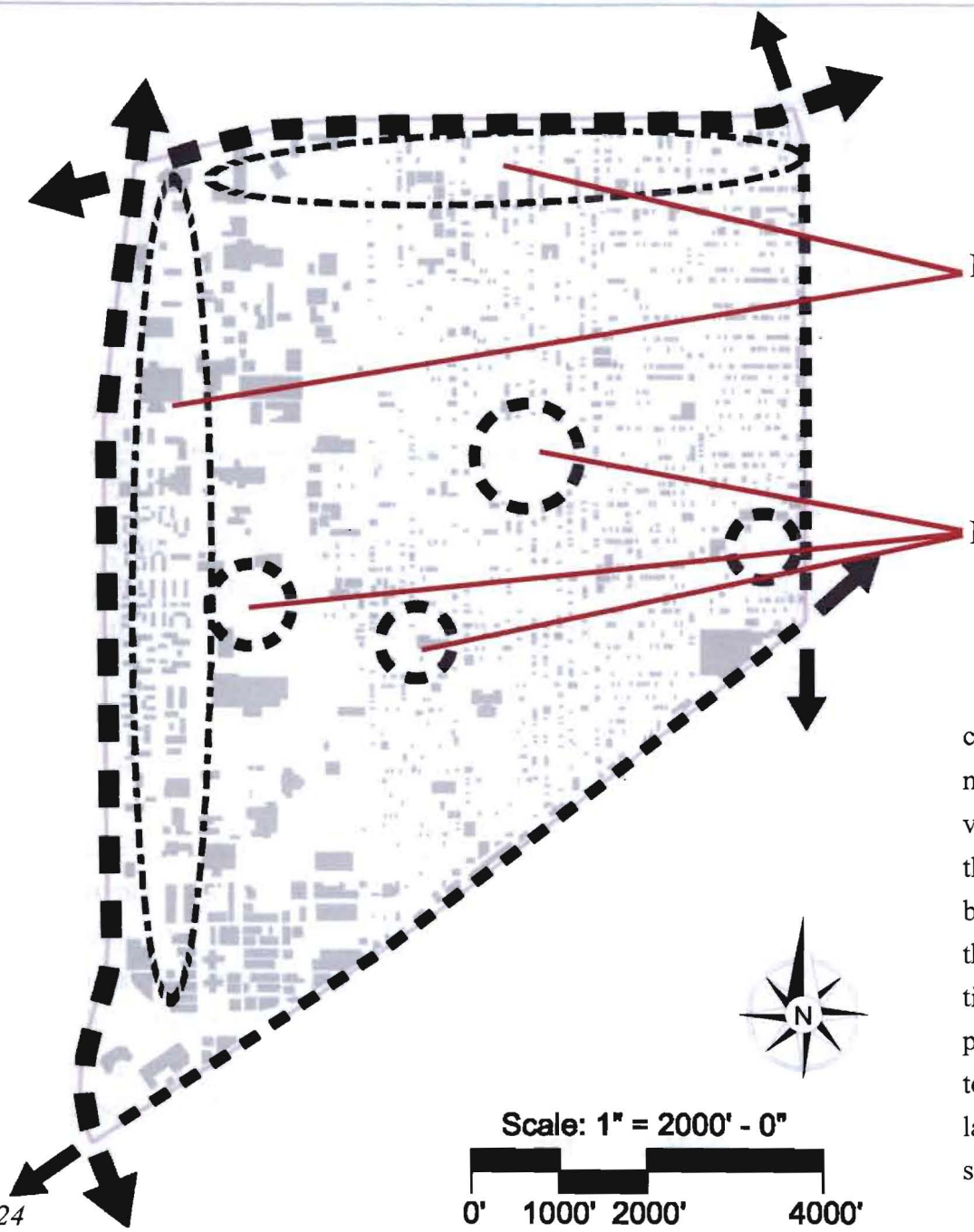
= 25% - 49.99%

= 50% - 74.99%

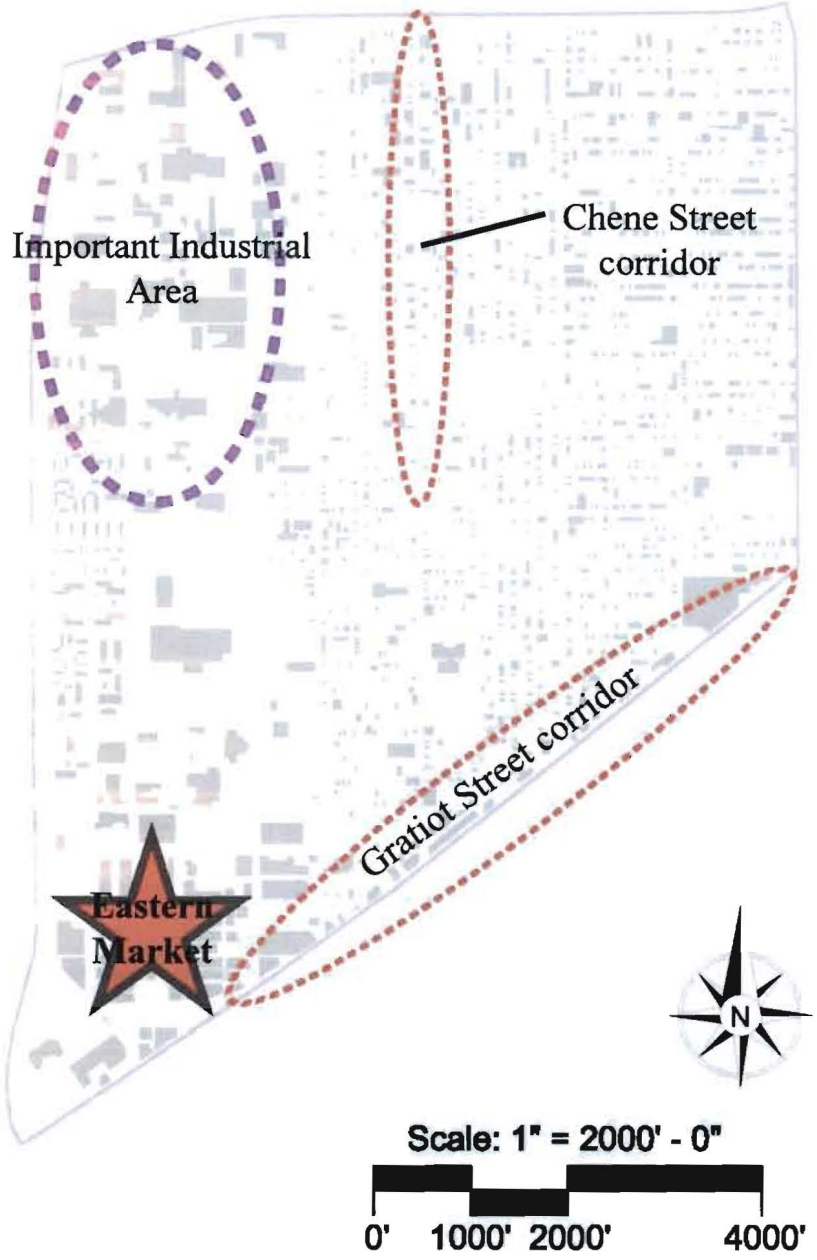
= 75% - 100%

Compared to the historic land use map on the preceding page, the block vacancy study, pictured here at left, tells a much different story. With just over half of the blocks within this site being over 50% vacant, the pre-redeveloped condition was one of social fragments and islands of upkeep in a sea of disrepair. Likewise, another 1/3 of the blocks are between 25% and 50% empty, further exacerbating the issues within this ailing neighborhood.

From the block vacancy study and the historic land use map, it was also determined that the less vacant blocks were located primarily within the western, more industrial side of the site. With many municipal uses to the northwest and more recently constructed low-income apartment systems to the west, it can be assumed that the public realm fared better than the private in Detroit's economic decline. This fact is further confirmed by the almost desolate remainder of the Chene Street commercial corridor, or the red band running north to south through the center of the site.



The framework basic site information details the existing conditions of the area. Framed by two elevated highways to the north and the west, there are prime opportunities to soften the vertical transition between highway and the site proper. Also to the west, there exists a cluster of larger, industrial and institutional buildings with large swaths of empty space in between them. To the east of the site, the residential sections are laid out into smaller, tightly-packed buildings. Yet all over the site there exists large pockets of vacancy with four detailed on the figure ground diagram to the left. These vacant areas provide great opportunities for new, large-scale urban farming initiatives, or a subdivided array of smaller techniques.



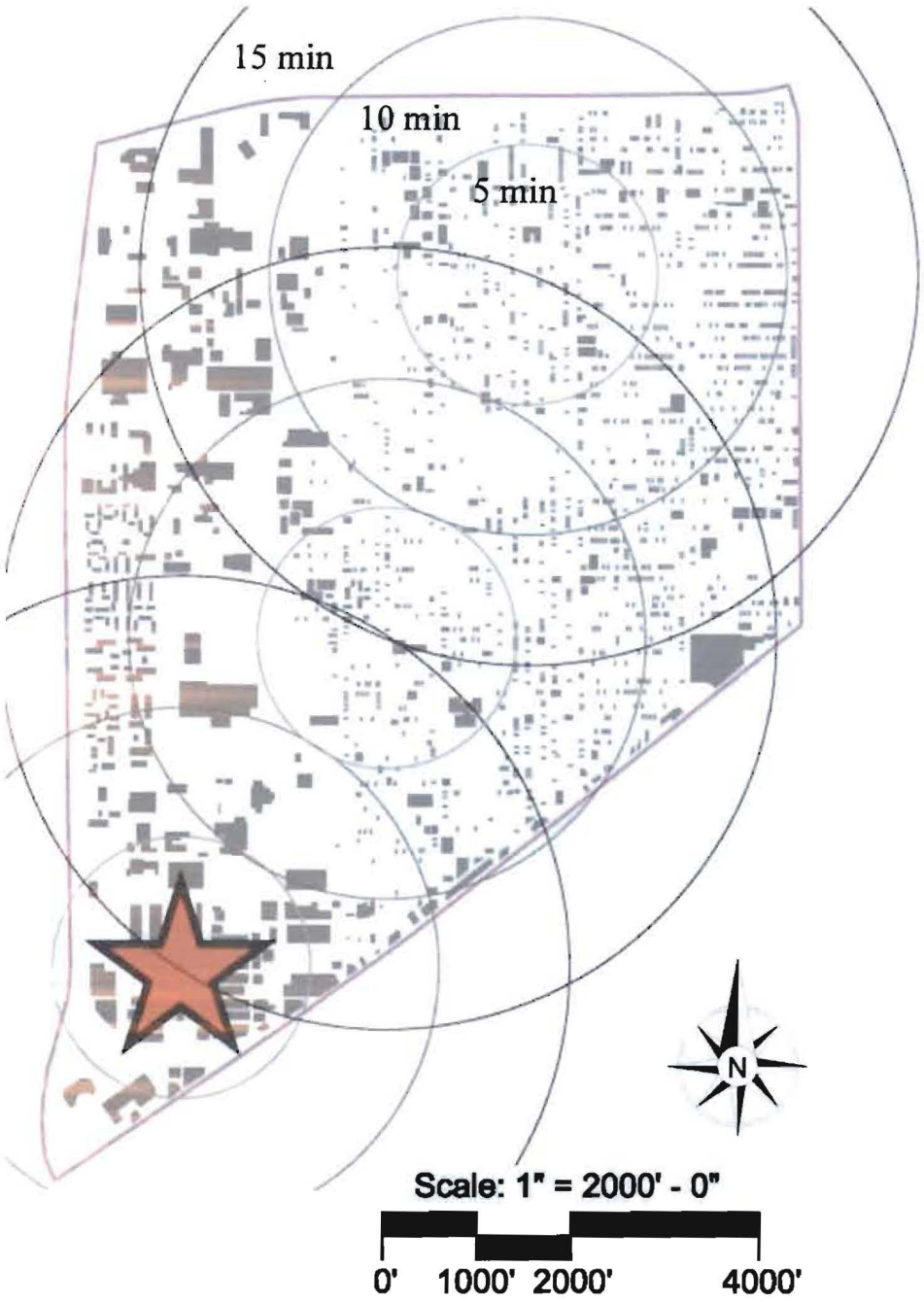
In order to successfully restore an area to a population of 30,000 residents, there needed to be opportunities for economic gain and employment. Therefore, the study at left details some of the predevelopment economic possibilities located within the site. There was an important industrial area located in the northwest corner of the site which had the potential to provide a significant amounts of jobs if restored to full production capacity. Currently, there are a number of empty large structures that could be repurposed for another industrial business.

Outside the industrial area on site, there were three important commercial sections of the site. The north-central commercial strip was what remained of the Chene Street commercial corridor. Historically, this economic strip ran north to south and completely through the site, providing the shopping needs of the community. Likewise, the Gratiot Street commercial strip ran northeast to southwest, connecting Eastern Market with the surrounding areas. These commercial areas were important to the revival plan of Regrowing Detroit.

Yet the most important economic driver of this community was Eastern Market itself. This market was the motor for the revitalized, local economic system that developed as the project progressed

Eastern Market has been one of a few economic drivers of Detroit during its long, arduous decline. Beginning in 1891, Eastern Market has served both as the food processing center and wide-spread industrial sector of Detroit. Every weekend, thousands of people travel to Eastern Market for their sprawling farmers market which carries anything from locally-grown food to artwork and much more. Also, each of the products sold within the weekend market come from a large span of places including Ohio, Ontario, and everywhere in between.

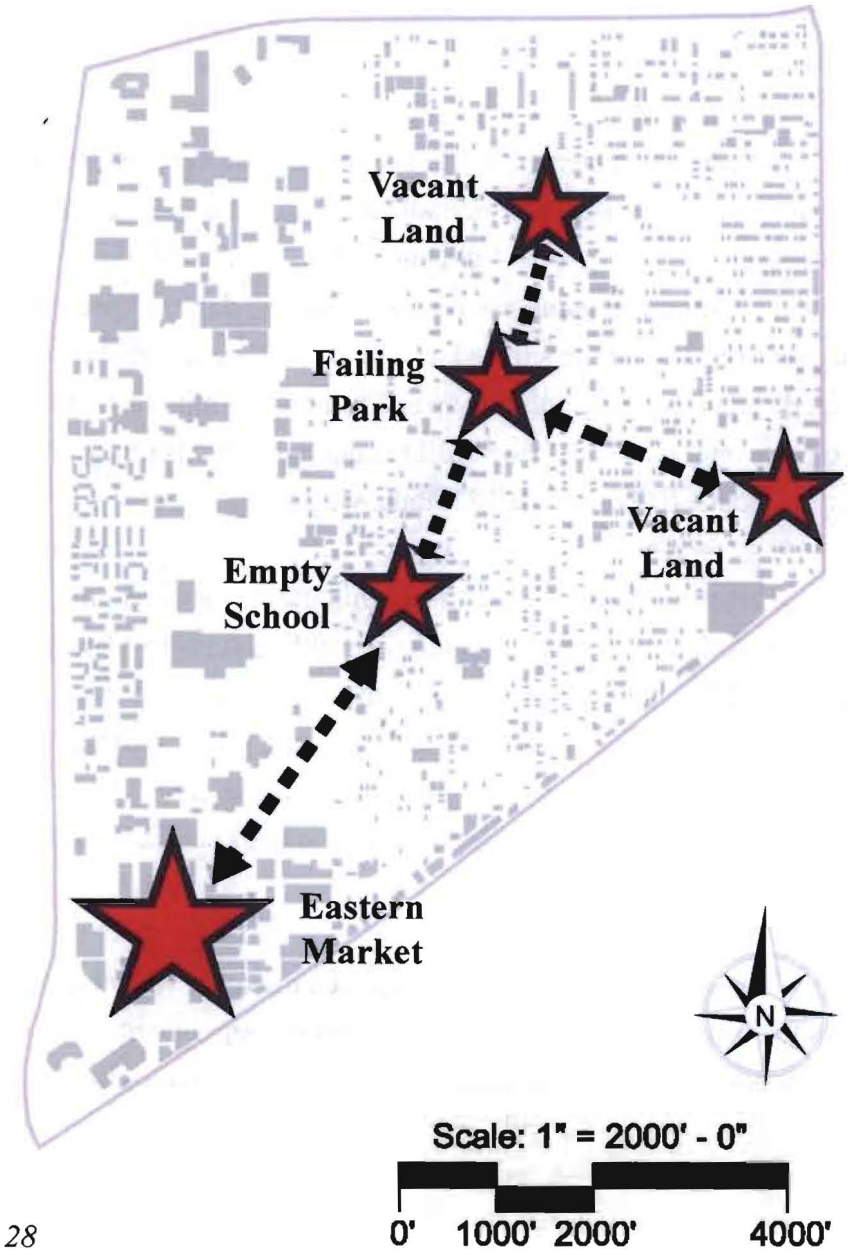
Eastern Market was the key economic component for Regrowing Detroit because of its existing consumer base. With thousands of people already visiting this area of the site, it would be only a small transition to extend the visitor experience north into the heart of the site.



An important element of Regrowing Detroit was economic sensitivity and mixed-income revitalization. In order for people of all economic strata to get the full benefit from Eastern Market's extended commercial value, a study needed to be done to ensure that every resident of the site had access to it. The study shown at left details a walking radius map at 5 minute, 10 minute, and 15 minute intervals. As it shows, all residential sections of the framework site lie within the 15 minute walk distance.

This study also identified three important places within the framework site. The first area, to the south, is Eastern Market itself, which is important because it is the economic driver of the new system. The second and third important areas were the central points of each set of walking studies. These areas are the prime sites for important development due to their centrality to the walking study.

Finally, this walking study identified the basic walkability of a site this large. Even though 1,400 acres is a significant area, with the right infrastructure in place, a person can traverse the site from north to south in roughly 30 minutes, which made pedestrian movement critical to Regrowing Detroit.



The final element that informed the Framework Revitalization Plan for Regrowing Detroit was the identification of important areas within the site. Utilizing the pockets of extreme vacancy from the Basic Information map and the three important points identified by the walking study, a network of high-value places emerged. Upon further study it was determined that each of these high-value places were either abandoned by their previous owners/users or completely empty, with the important exception of Eastern Market.

With all of the important locations being former residential or institutional areas, lingering pollution was not a worry, opening the possibilities up to include in-ground urban agriculture. Also, each of these ares were within the walking study as well, meaning that they are accessible by all individuals on site. Finally, this network was key to the establishment of various elements within the revitalization plan for Regrowing Detroit.

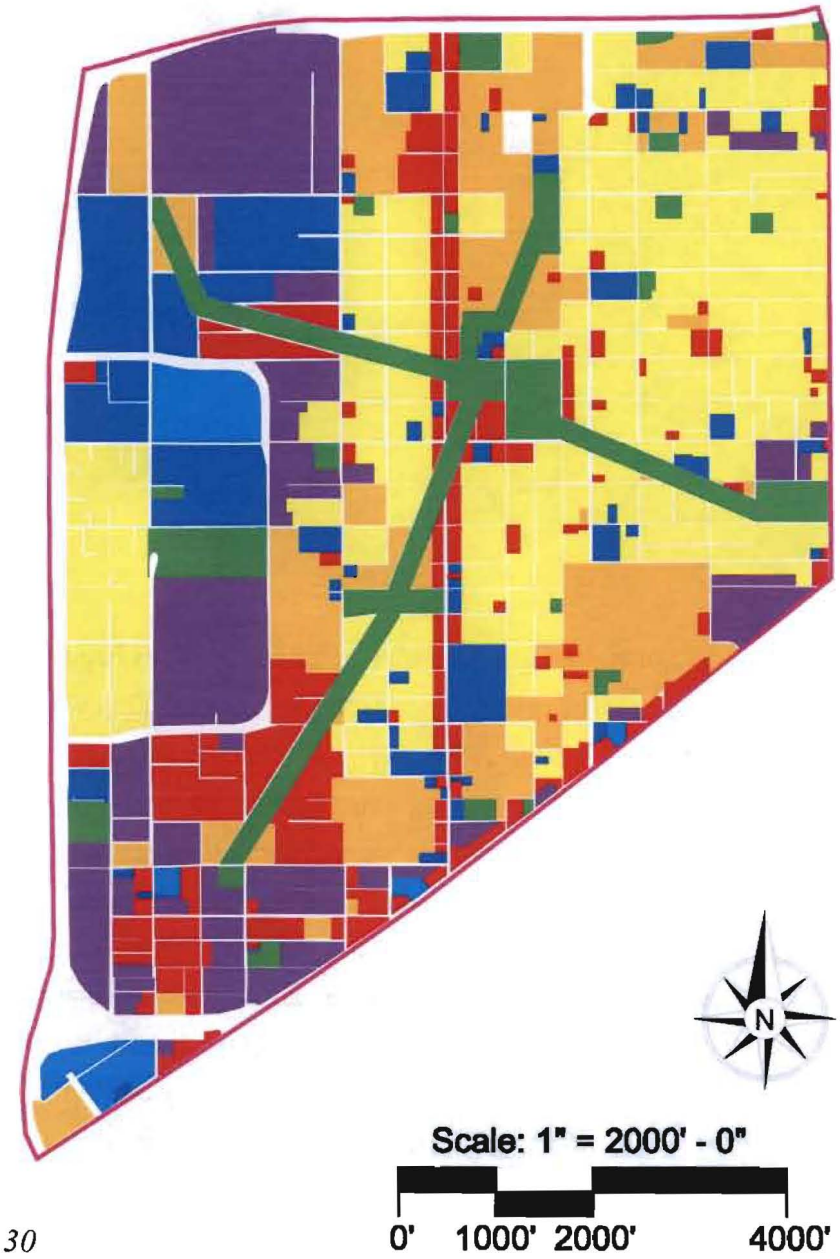
Revitalization Plan Key

= Non-Vacant Land

= Urban Agriculture

The design for the Framework Revitalization Plan began with a strong infusion of urban agriculture into the site. This was done by converting all of the green and yellow blocks (all less than 50 % vacant) into the gray, non-vacant land category. The orange and red blocks (all over 50% vacant) became urban food production land. In this situation, over 750 acres were devoted to food growth which had the potential to produce roughly 14,500,500 pounds of fruits and vegetables. However, this scheme does not account for residential needs, commercial possibilities, institutional land, and green/open spaces. Therefore, by adding each of these layers in turn, the final framework plan began taking shape.

Framework Design - ...and Ended with This



Land Use Key

- = Urban Agriculture
- = Commercial
- = Green/Open Space
- = Industrial
- = Institutional
- = Office
- = Residential

The final Framework Revitalization Plan is the product of six different urban elements. Detailed on the next page, each of these elements were separated onto their own layer and stacked on top of each other. Each element and layer have distinct reasoning for why they ended up the way they day and all have important benefits for the community surrounding them.

The driving factors for this design were the target population of 30,000 people, the important sites revealed by the framework analysis, and creating important green/commercial datums around which this community can regrow. Ultimately, the historic land use map played a supporting role in the revitalization because the community had an identity and an organization that was changed in this design, but not entirely forgotten.

Housing Production Breakdown

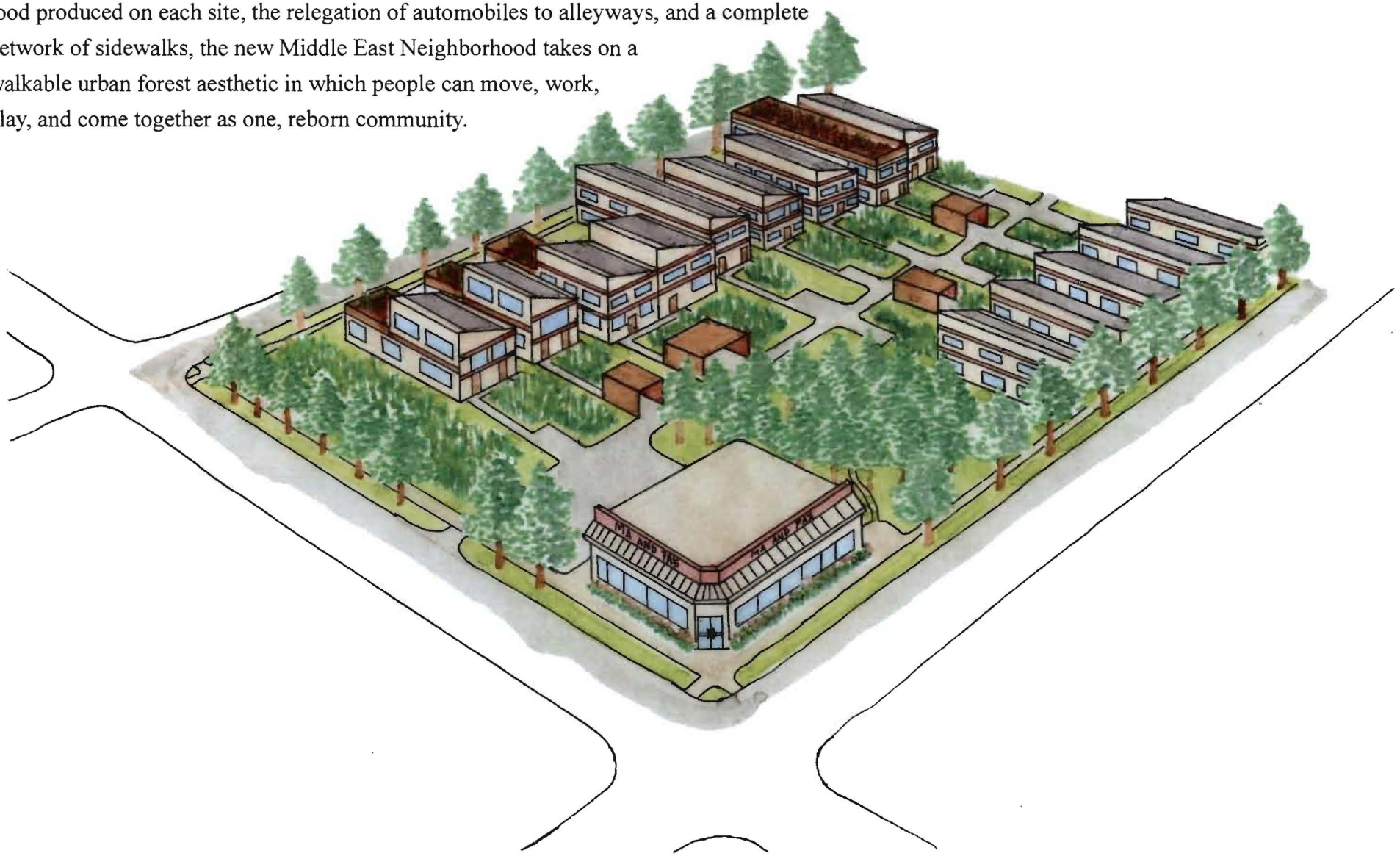
	Food Production	Total sq. ft.	Food Produced (lbs)	% for 2 people	% for 3 people	% for 4 people	% for 5 people	% for 6 people	% for 8 people	% for 9 people	% for 10 people	% for 12 people	% for 15 people	Energy Production	PV System Size (#)	Daily Energy Produced (W)	% Daily Household Use	$ Saved on Energy per year	$ Saved per Family per year
Single Family - C1		1,184	526.88	38.26	25.50	19.13	15.30												
Single Family - C2		1,223	544.24	39.52	26.35	19.76	15.81								25	6,250	26.04	234.36	234.36
Duplex - C1		1,115	496.18					12.01	9.01		7.21								
Duplex - C2		2,103	935.84					22.65	16.99		13.59				26	6,500	13.54	243.72	121.86
Triplex - C1		2,132	948.74							15.31		11.48	9.19		37	9,250	12.85	346.95	115.65
Triplex - C2		2,340	1,041.30							16.80		12.60	10.08		38	9,500	13.19	356.13	118.71
Triplex - C3		1,984	882.88							14.25		10.68	8.55		34	8,500	11.81	318.87	106.29
Townhome - C1		1,530	680.85	49.44	32.96	24.72	19.77								6	1,500	6.25	56.25	56.25

Townhouse Plan

Townhouse Section - Side

In order to complete the food production calculations and provide a "kit of parts" for the revitalization plan, eight housing prototypes were created. Ranging from single family to triplexes, each prototype has a unique look, food production capabilities, and energy production. All eight houses can be seen in Appendix A.

Utilizing the different housing types and elements such as corner businesses, urban orchards, and productive streetscapes, this example block was developed. Used only as a prototype, this image is meant to give a visual understanding of what a residential block within this revitalized neighborhood could look like. Between the food produced on each site, the relegation of automobiles to alleyways, and a complete network of sidewalks, the new Middle East Neighborhood takes on a walkable urban forest aesthetic in which people can move, work, play, and come together as one, reborn community.



Community Park Design

Site Design Vision Statement

At the site level, this project becomes a beacon of education, recreation, and economic possibility within the community. With a large emphasis on park/open space, this site becomes the collective "backyard" that is occupied by agriculture on each of the homesteads. However, each of these spaces provides a flexible function within the community, allowing the area to transform each weekend into event spaces and outdoor exhibitions for visitors.

Goal #1: *Provide an Education Center for urban agriculture, composting, and localized food systems.*

Objective 1: Provide an education center for the community and visitors to learn about topics included in urban agriculture.

- This building will include classrooms where educational workshops can be held, along with event spaces for speakers or "food swaps" can happen.
- The building will also include exhibit spaces that showcase the historic presence of urban agriculture in Detroit.
- The building will be staffed with full time employees, providing job opportunities to community members.

Objective 2: Create an outdoor example growing area in the landscape surrounding the education center.

- This area will include a variety of types of urban growing including small-scale aquaponics systems, greenhouse structures, and traditional outdoor gardening at many scales.
    - Each of these growing types will grow enough food for 100 people allowing a spatial comparison and showing efficiency of each.
- The staff of this center will also maintain the onsite urban orchard made up of fruit-producing trees lining the pathways.

Goal #2: *Provide recreation opportunities for the community, particularly within the run-down park space.*

Objective 1: Create a trail network for walkers, runners, and bikers that flows through the site at certain distances.

- The trail network will be paved with a light-colored, porous pavement to reduce the stormwater impact of the site.
- The distances for the trails will be ¼ mile, ½ mile, and ¾ miles.
- This walking trail will be connected to the overall green spine trail and ultimately Eastern Market.

Objective 2: Restore the existing onsite recreation elements to a usable level.

- Install a series of sports areas including a restored basketball court, a flexible soccer/football field, and a baseball diamond.

Goal #3: *Create pathways for multiple types of transportation.*

Objective 1: Provide defined lanes for walking/running and bicycle riding.

- These will be defined on the trail system for everyday use.

Objective 2: Provide defined bike lanes within the streets of the site.

Objective 3: Provide defined motorized cart paths along the green spine trail connecting Eastern Market to this site.

- These cart paths will be in use on weekends for a motorized cart system moving people between food hubs, this site, and Eastern Market.

Goal #4: *Create economic possibilities surrounding the park/open space on the site.*

Objective 1: Establish prime commercial space surrounding the park space.

- These areas will have high hedonic value and foot traffic on weekends when Eastern Market is in session.
- The transportation possibilities in the area will allow this area to become a commercial center for the revitalized neighborhood.

Objective 2: Attract food-related businesses such as aquaponics growers, vertical farmers, locally-sourced grocery stores, food processors, and locally-sourced restaurants through reduced pricing or tax cuts.

- Ensure some outdoor café spaces.

Goal #5: *Establish a culturally-sensitive and historically accurate identity for the area through its detailing and aesthetics.*

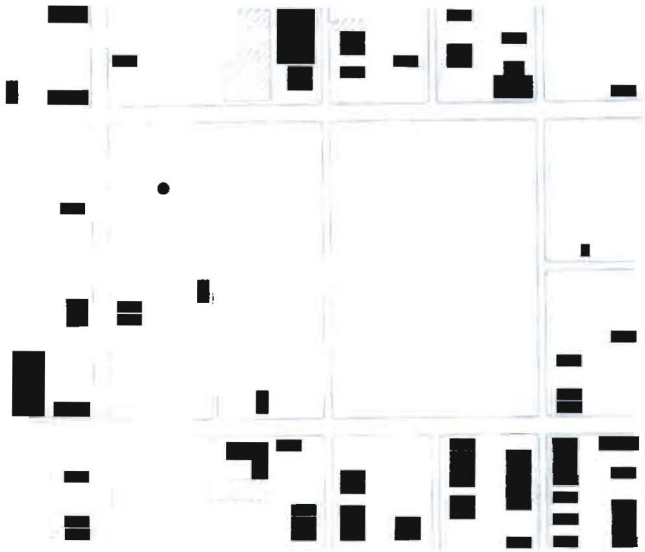
Objective 1: Establish a landmark element within the site that people can identify as a meeting and wayfinding point.

- Create a central feature of a fountain, sculpture, or flame.
- Include repeated details around the site to provide continuity and a cultural experience.
- Utilize planting to create exciting and social areas within the site.

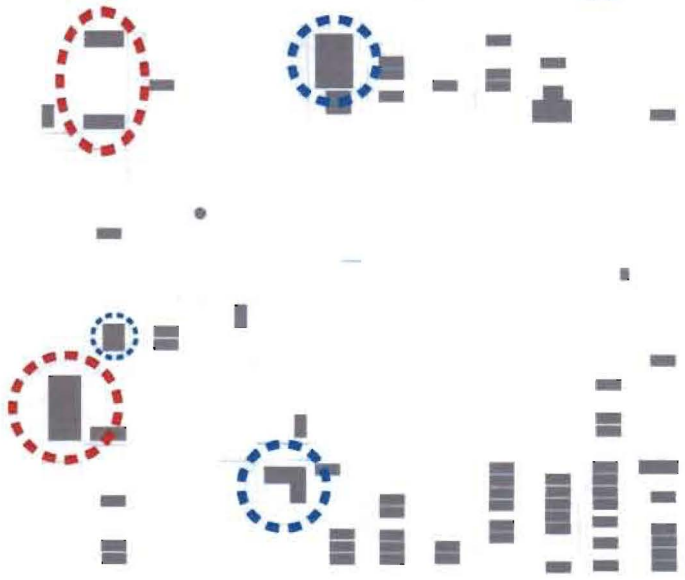
Site Design Location

The location for the Community Park Site Design was chosen from the information gathered in the framework plan. The area called out in color in the image to the left is the center crossing point for both the green corridors as well as the Chene Street commercial corridor. This became an integral focus point within the community in terms of economic, social, and environmental possibilities. With walking access from any point in the site, this central park acts as a social catalyst as well as an educational resource within Regrowing Detroit.

Site Figure Ground

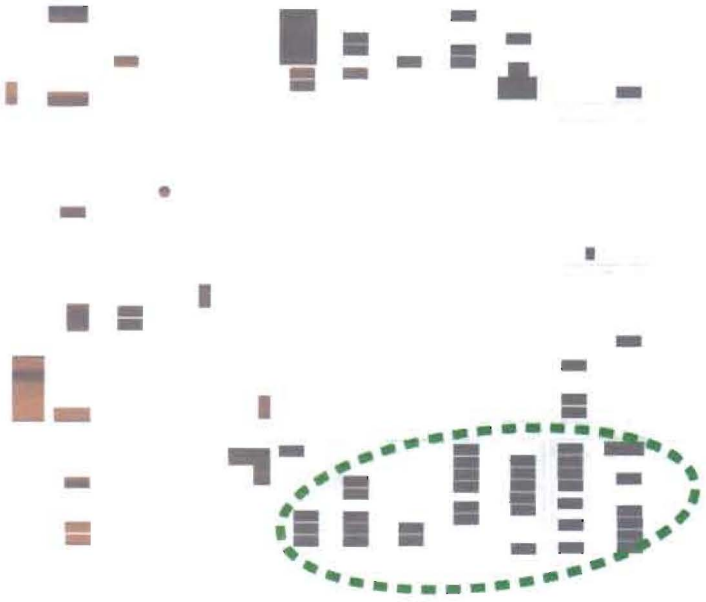


Commercial & Institutional Opportunities

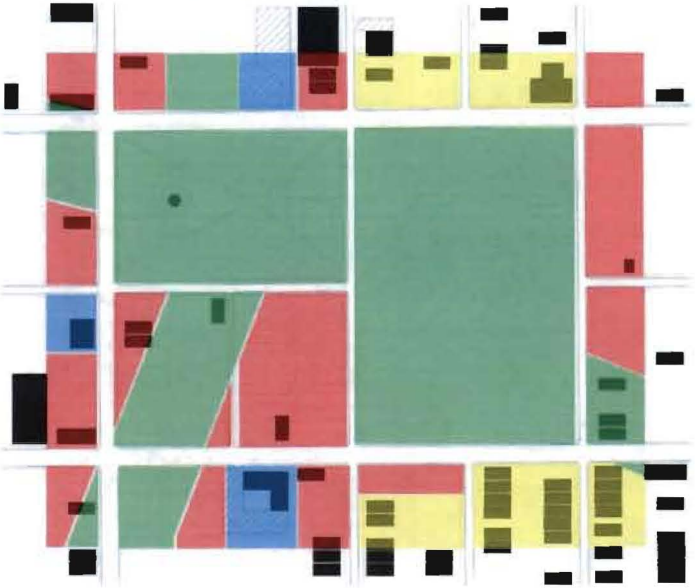


The site chosen for the Community Park is roughly 42 acres and is ailed by extreme vacancy. With the exception of a small existing pocket of houses to the southeast of the site, most of the other structures are either vacant or no longer standing. Located in the center of the site is a failing park that at one time had a gazebo structure and a basketball court. Yet, due to time and a lack of maintenance, both are gone or unusable today. Finally, the design clues gained from the framework plan were key in the layout of the site.

Important Existing Residential



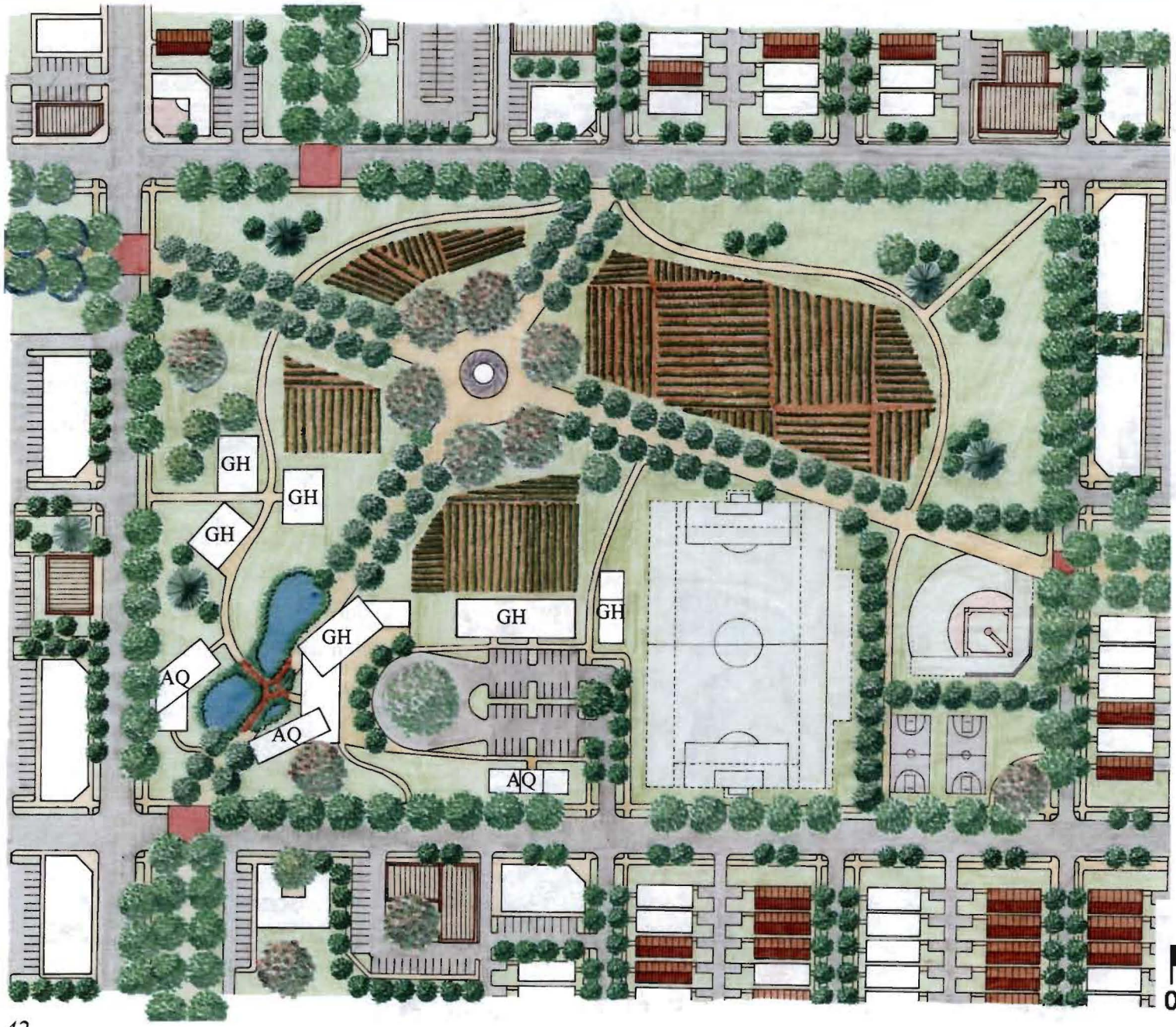
Framework Design Clues



Scale: 1" = 400' - 0"

0' 200' 400' 800'

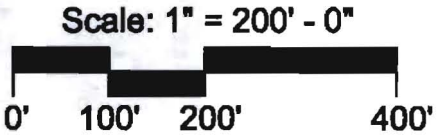
Site Design - Master Plan

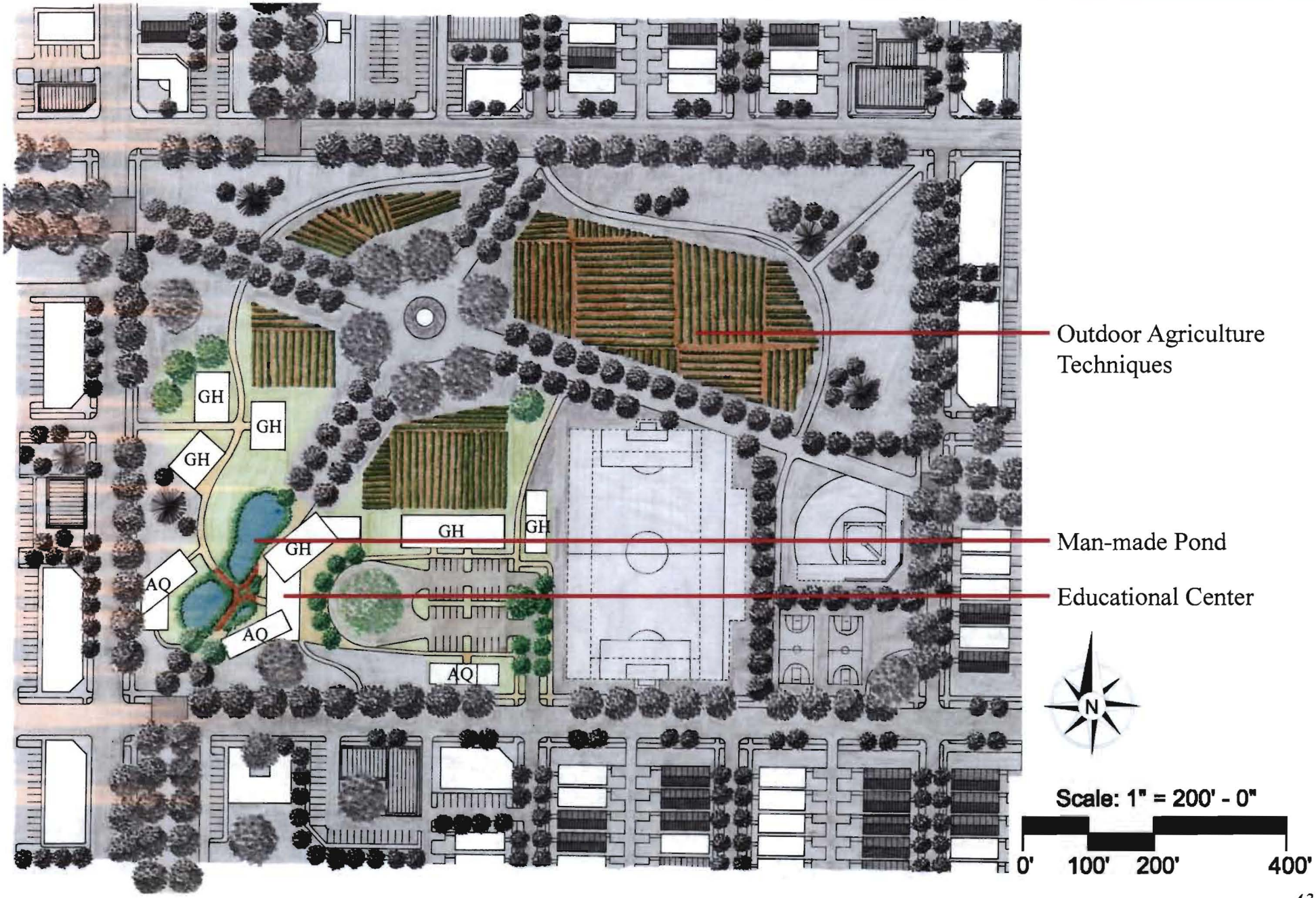


The Master Plan for the Community Park is comprised of a variety of intertwined uses, all dictated by the Goals and Objectives. The streets previously crossing the site were removed due to lack of use and disrepair, allowing one large and cohesive park to be formed. The following pages detail how each goal was fulfilled by this design.

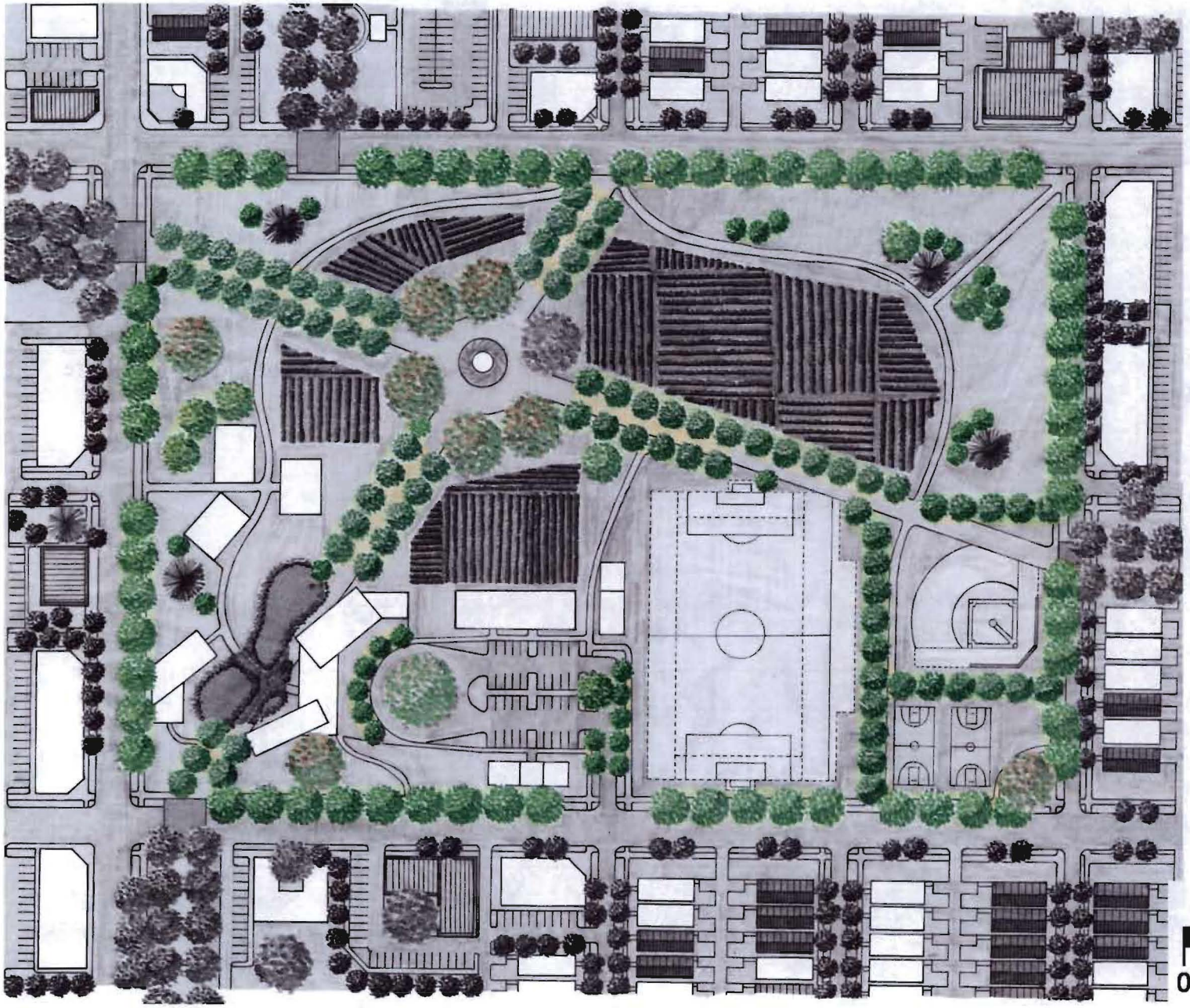
Master Plan Key

GH = Greenhouse Technique
AQ = Aquaponics Technique
Rendered Buildings = Existing
White Buildings = New

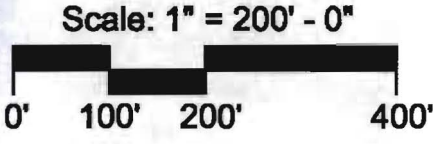



GH
GH
GH
GH
GH
GH
AQ
AQ
AQ
Outdoor Agriculture Techniques
Man-made Pond
Educational Center
N
Scale: 1" = 200' - 0"
0'
100'
200'
400'

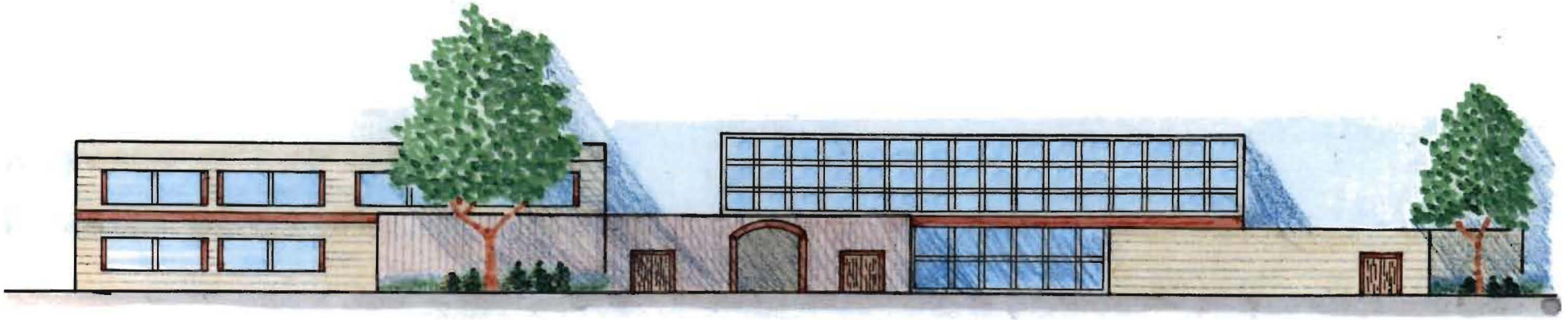
Site Design - Education Orchard



Part of the Education Center is an urban orchard. Every deciduous tree located within the site is either fruit- or nut-producing and is able to be harvest by the casual passerby. By combining productive streetscape techniques and traditional orchard ideals, the full-time employees of this center will maintain the health of the trees and harvest left-over food products for donation to local food banks. This is prime example of functional plant life also doubles as an aesthetic element within the plan.



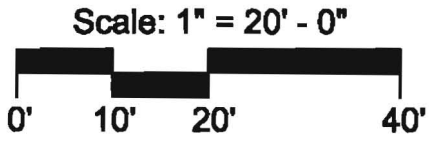
Education Center - East Side Section



Education Center - South End Section

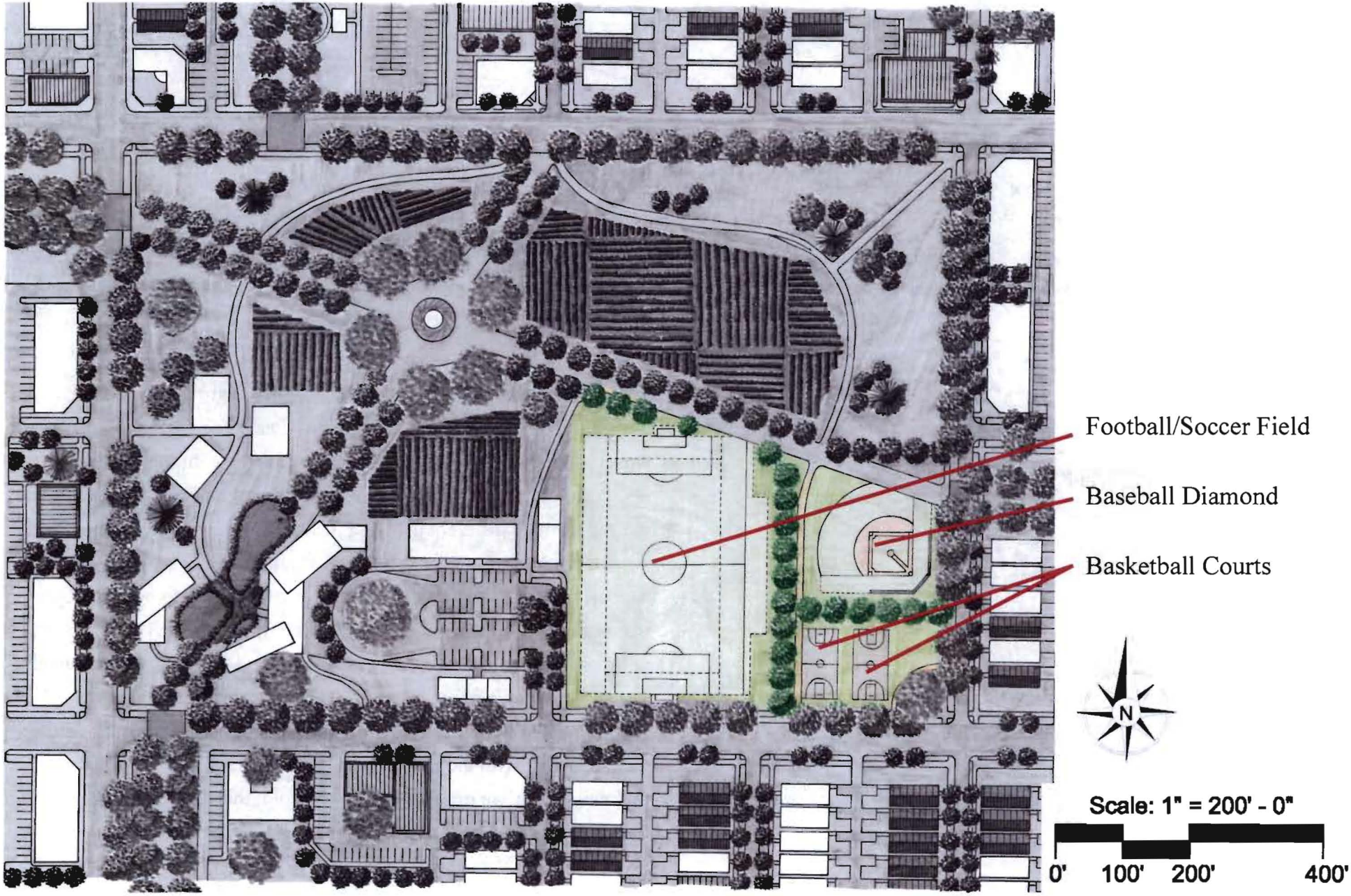
Education Center - Productivity Comparison

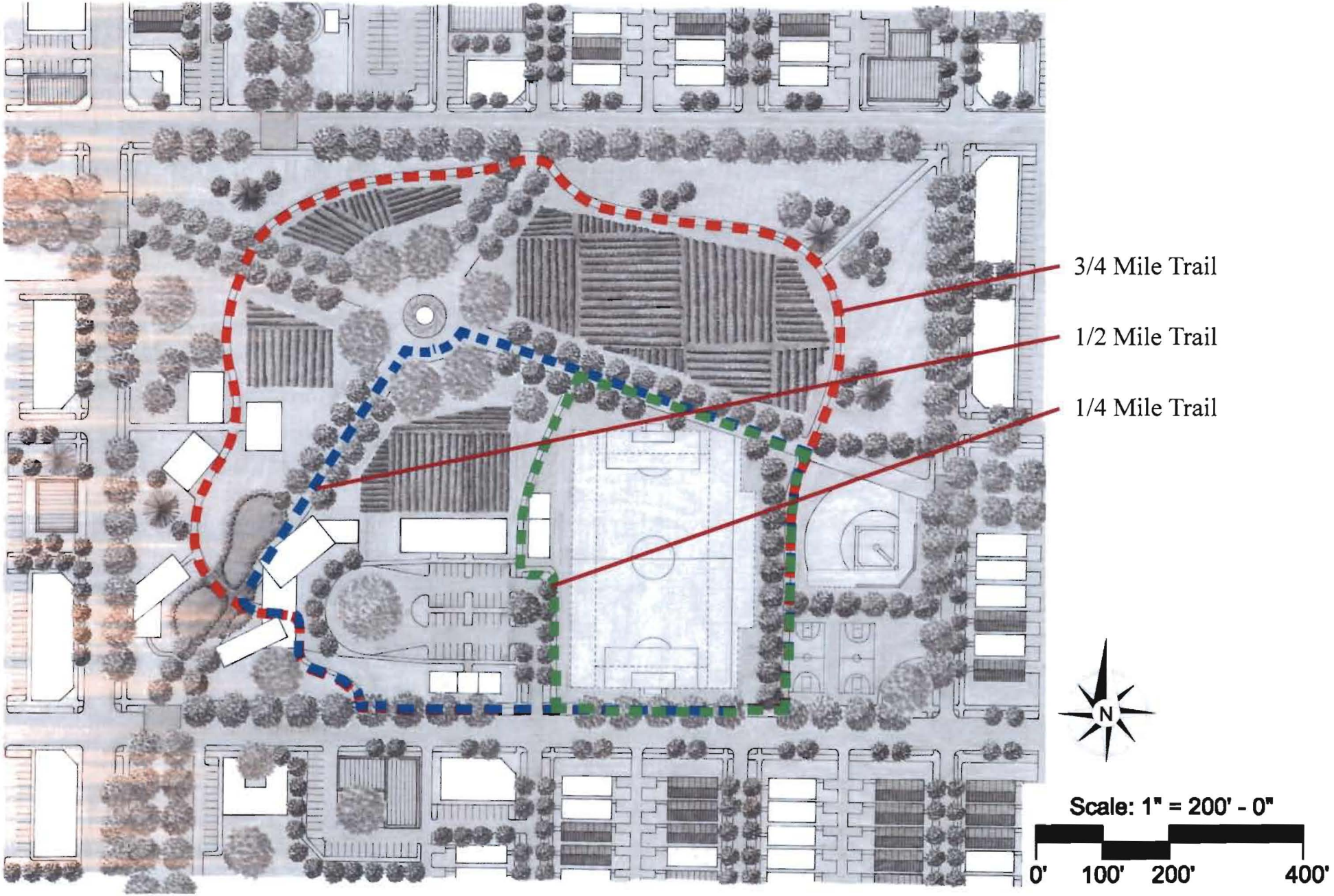
Traditional Garden	Greenhouse	Aquaponics
137,720 sq. ft.	27,544 sq. ft.	13,772 sq. ft.



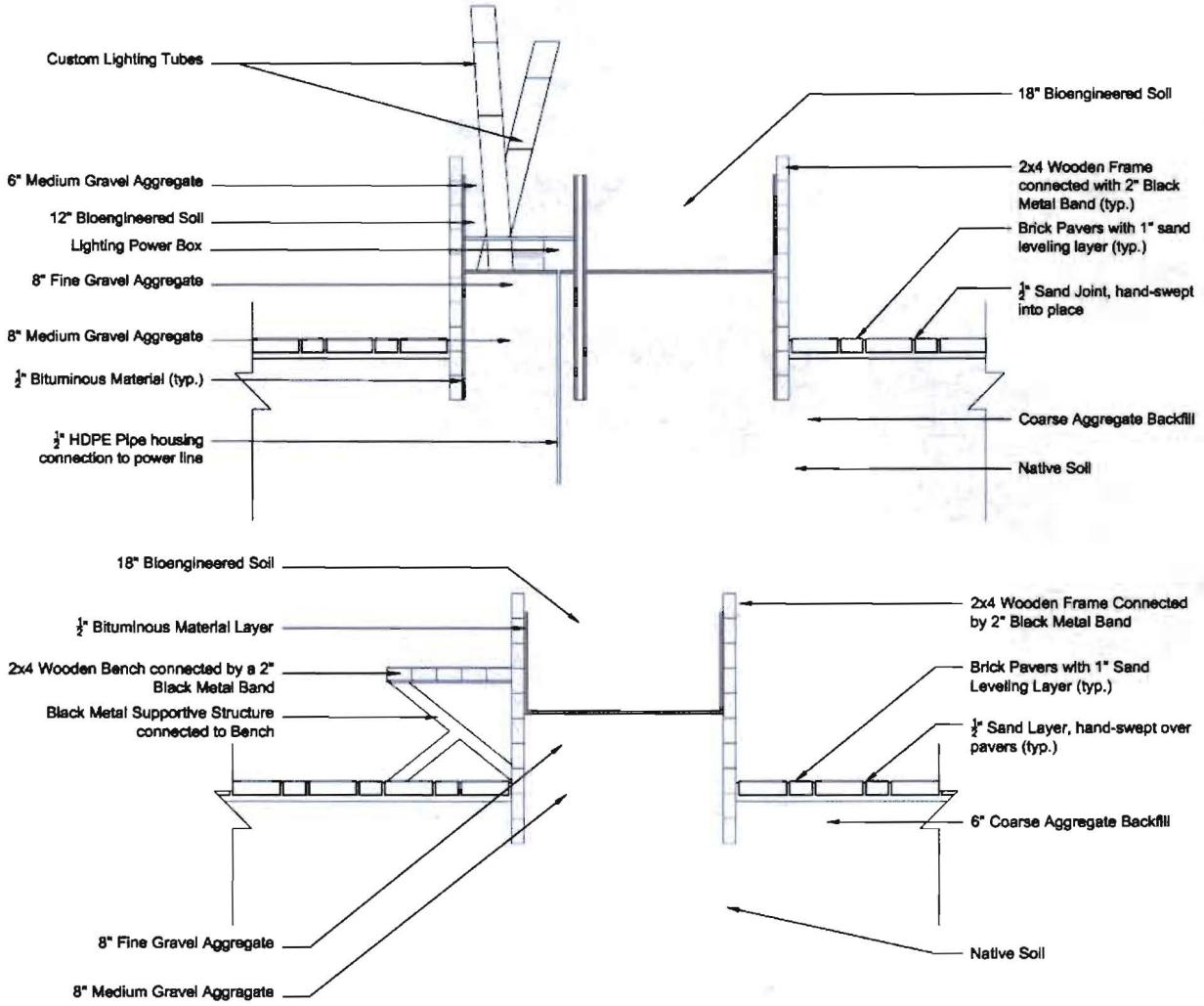
The Education Center of Regrowing Detroit is located in the southwest corner of the Community Park. Focused upon urban agriculture, this center is prime location for the community learn about growing methods they can implement at home. The center itself maintains three different growing techniques on its campus: traditional gardening, intensive greenhouse growth, and three aquaponics systems. The purpose of this is to allow a spatial comparison to be made by visitors between the three styles of urban farming. Each type of system will produce enough fruit and vegetables for 100 people each annually. As detailed by the chart at left, there are drastically different spatial requirements of each growth type to reach the goal amount of food.

Along with the Education Center proper, the employees also maintain the urban orchard on site. All told, this area of the design brought bring education, healthy food, and community empowerment to Regrowing Detroit.


Football/Soccer Field
Baseball Diamond
Basketball Courts
N
Scale: 1" = 200' - 0"
0'
100'
200'
400'


3/4 Mile Trail
1/2 Mile Trail
1/4 Mile Trail
N
Scale: 1" = 200' - 0"
0'
100'
200'
400'

Site Detail - Recreation

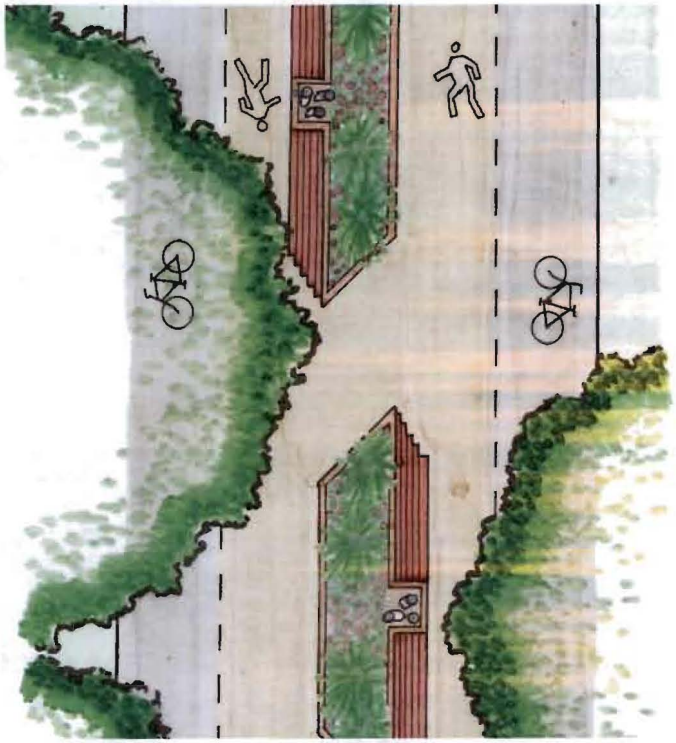


Scale: 1" = 10' - 0"

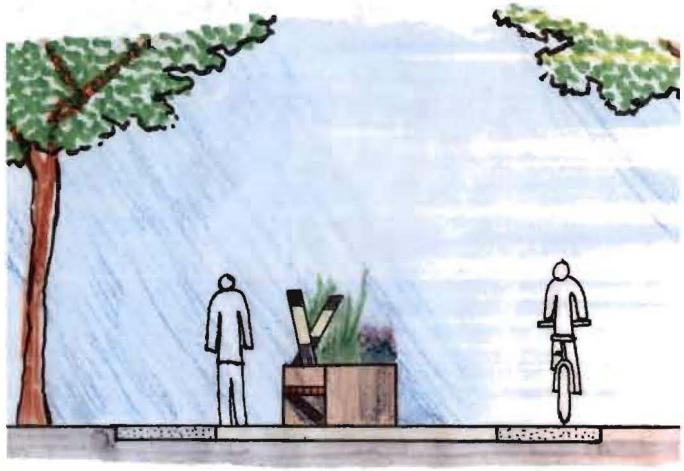
0' 5' 10' 20'

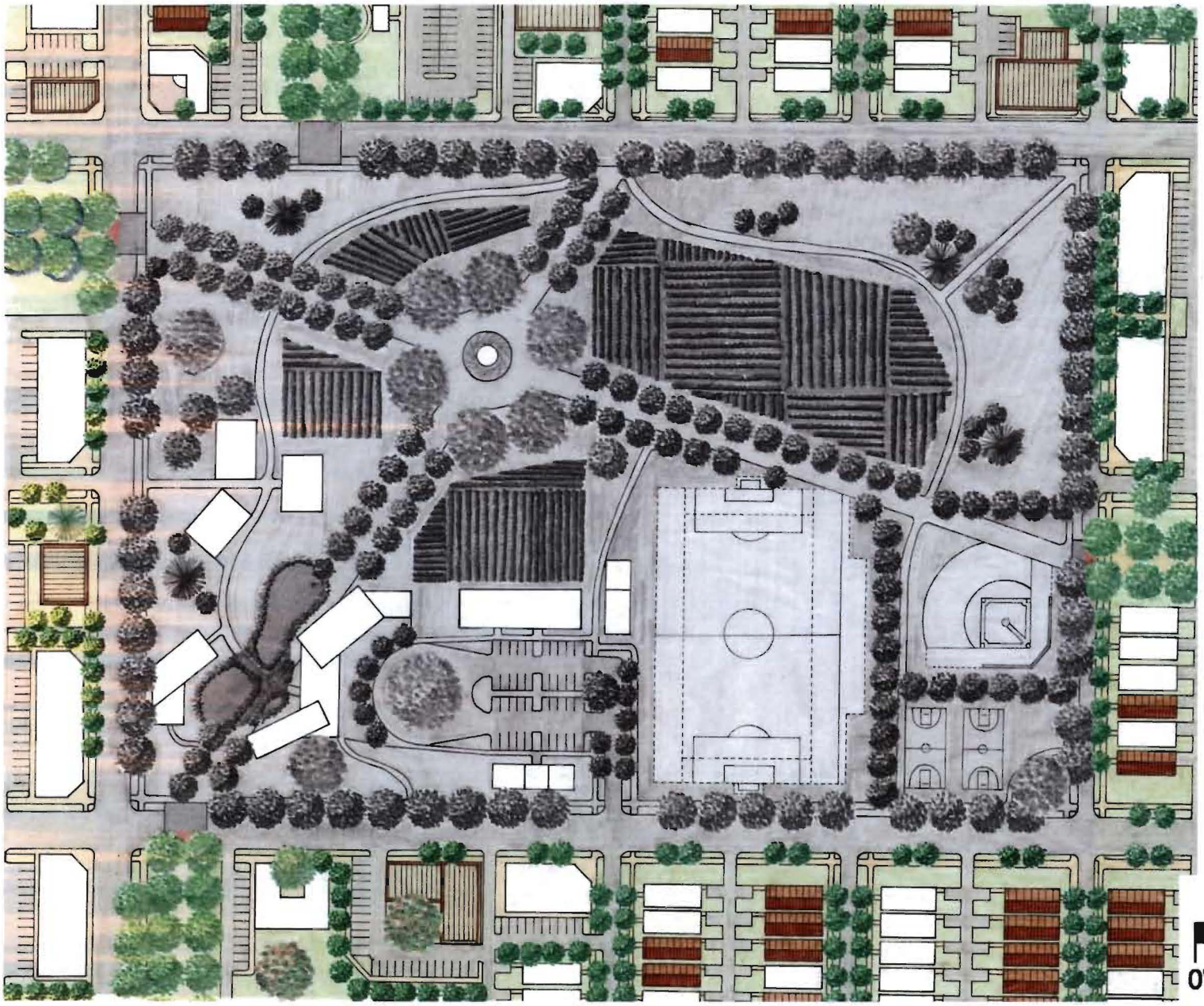
N

Rec. Path Plan



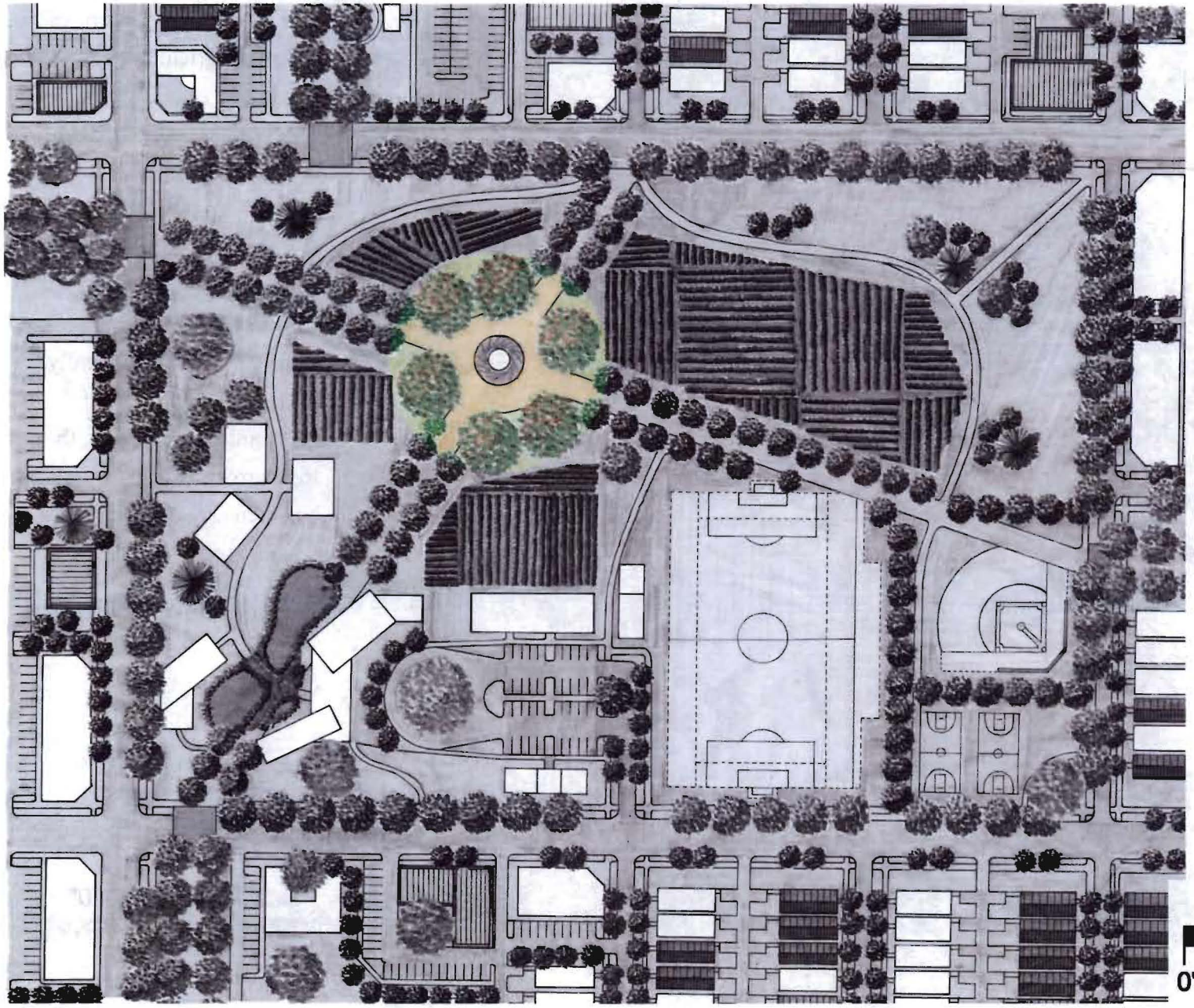
Rec. Path Section



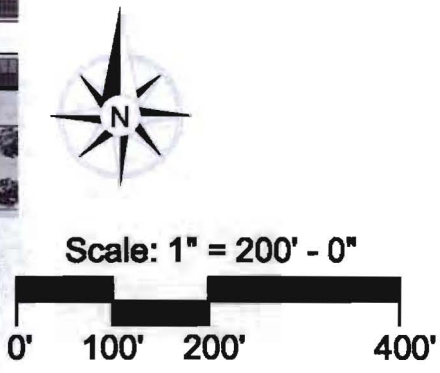


The economic possibilities of urban agriculture are significant only if there are commercial entities to complete the local system. Therefore, it was determined that a commercial core was important to create surrounding the Community Park. Comprised of locally-sourced restaurants and food distribution companies, the food grown within the site can be taken across the street to be prepared or preserved for resale.

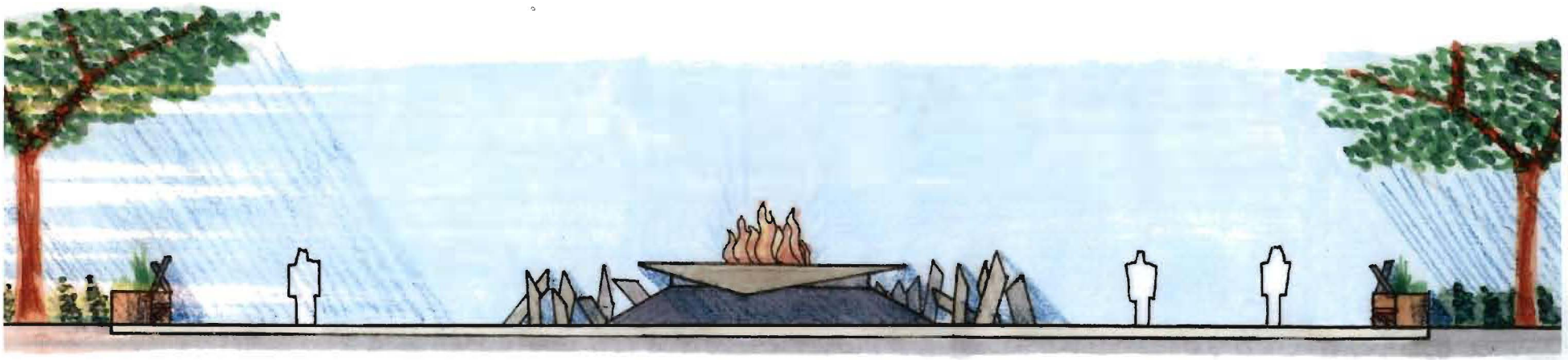
Site Design- Community Landmark



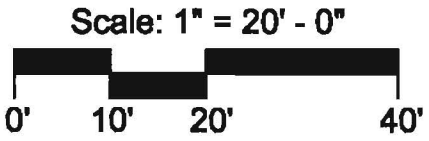
The focal element of the site plan is a large plaza, landmark space. Comprised of a ring of ornamental trees, widened pathway areas, and a central flame feature, this area is useful for meetings, community events, and even personal reflection.



Landmark Section



The landmark feature located in the northwestern portion of the site tells a story of perseverance and a spirit that is unbreakable. For years, Detroit has been brutalized by the economy, corrupt politicians, and a business sector that has mostly given up upon it. These harsh conditions are symbolized by the jagged rock outcroppings that surround the central flame structure. Yet, through all of this, citizens of Detroit have never given up hope and still survive within the city. This strength of spirit is symbolized by the flame itself that burns night and day to show people that even though the struggle is still great, there is hope. Regrowing Detroit, as a project, is a symbol of that hope. Detroit will persevere through community empowerment rather than governmental handouts. Through the education, economic opportunities, and infusion of healthy food, the new Middle East Neighborhood is a story of rebirth and success within an ailing context. Used as a model, this focus upon urban agriculture and local food can help transform other post-industrial cities around the nation.

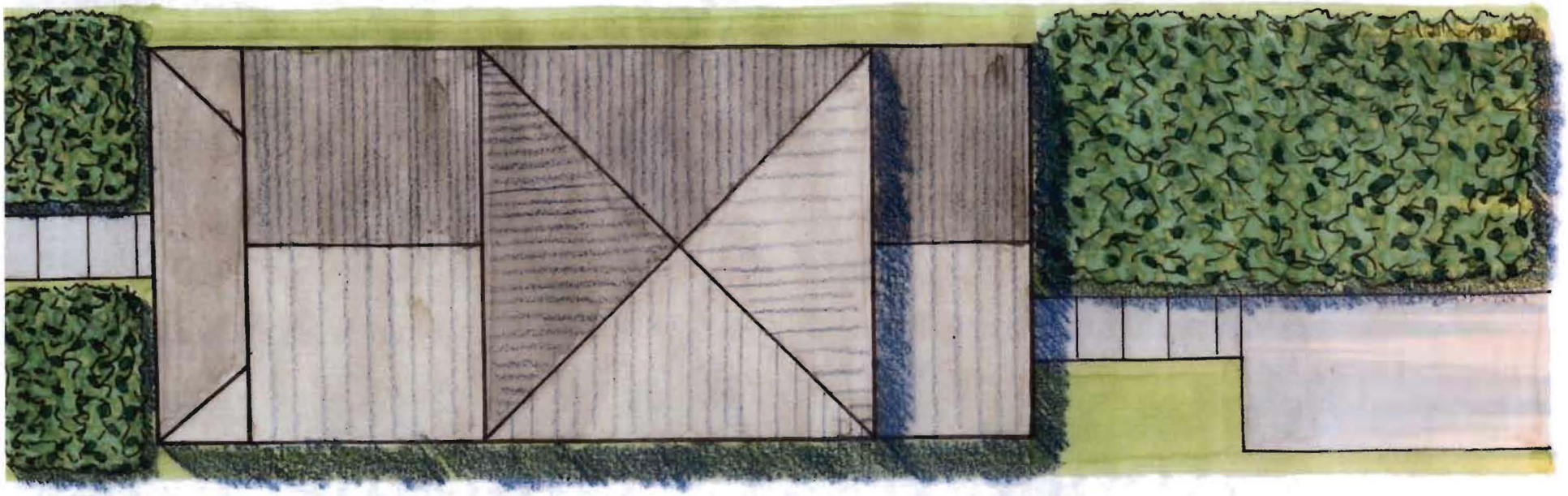


Urban Agriculture is about *empowering* the people. It is a pure *grassroots* approach working to rebuild in a *sustainable* and *fruitful* way benefiting the economically depressed, not the wealthy. It places everyone on an *even* playing field because, well, *everyone needs to eat*…

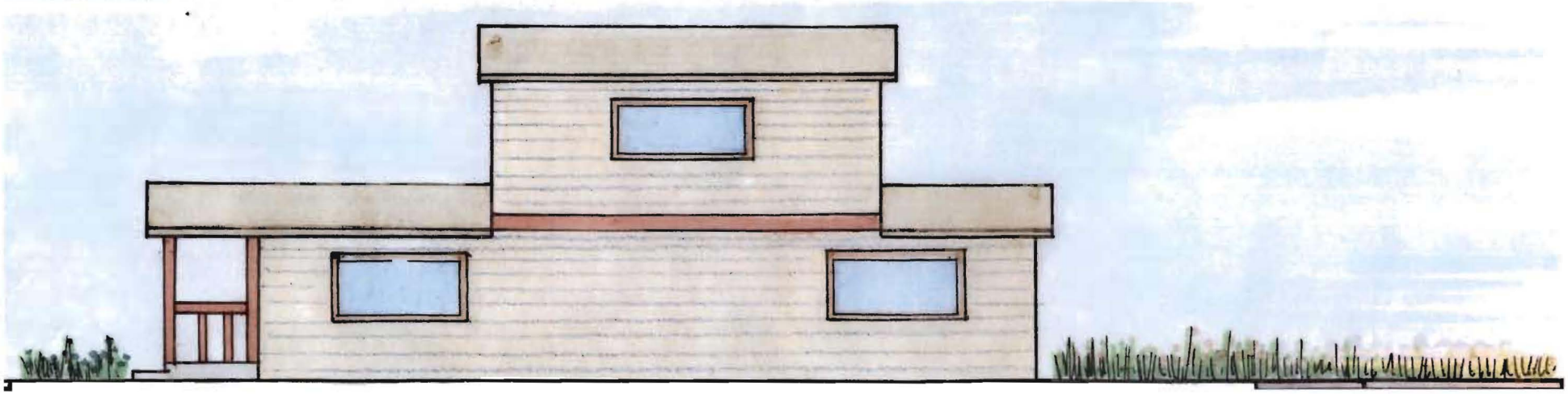
Appendix A - Housing Types

Single Family Option #1

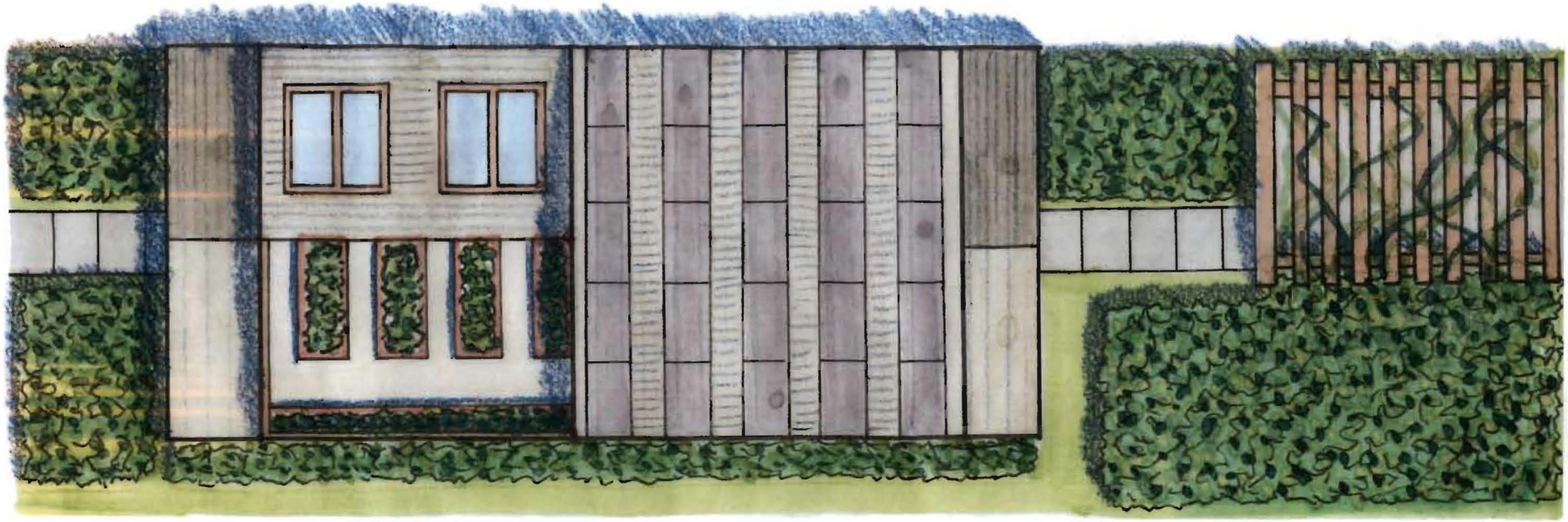
Plan



Side Section



Plan



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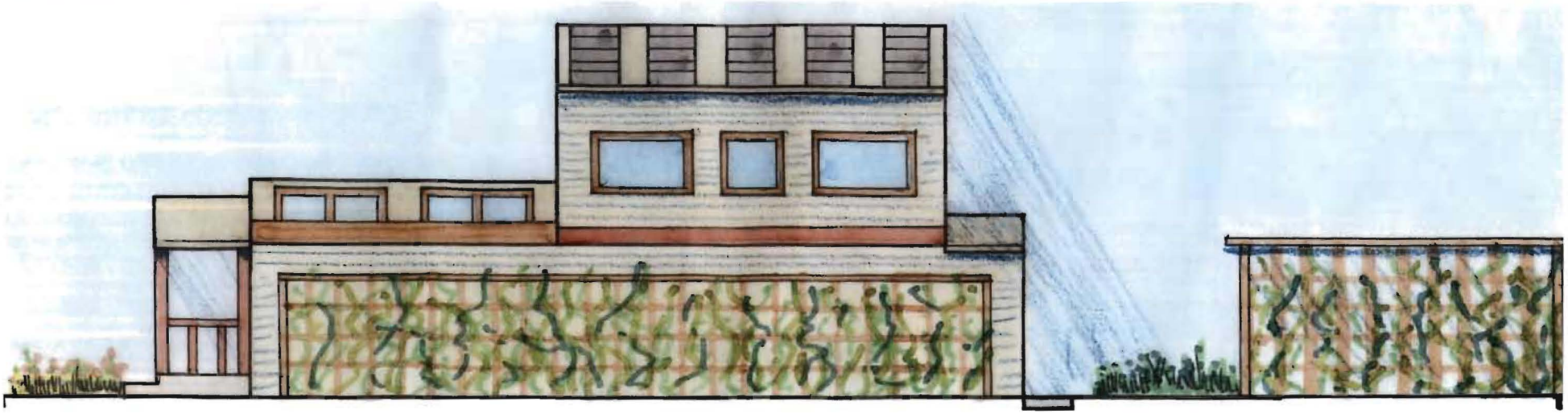
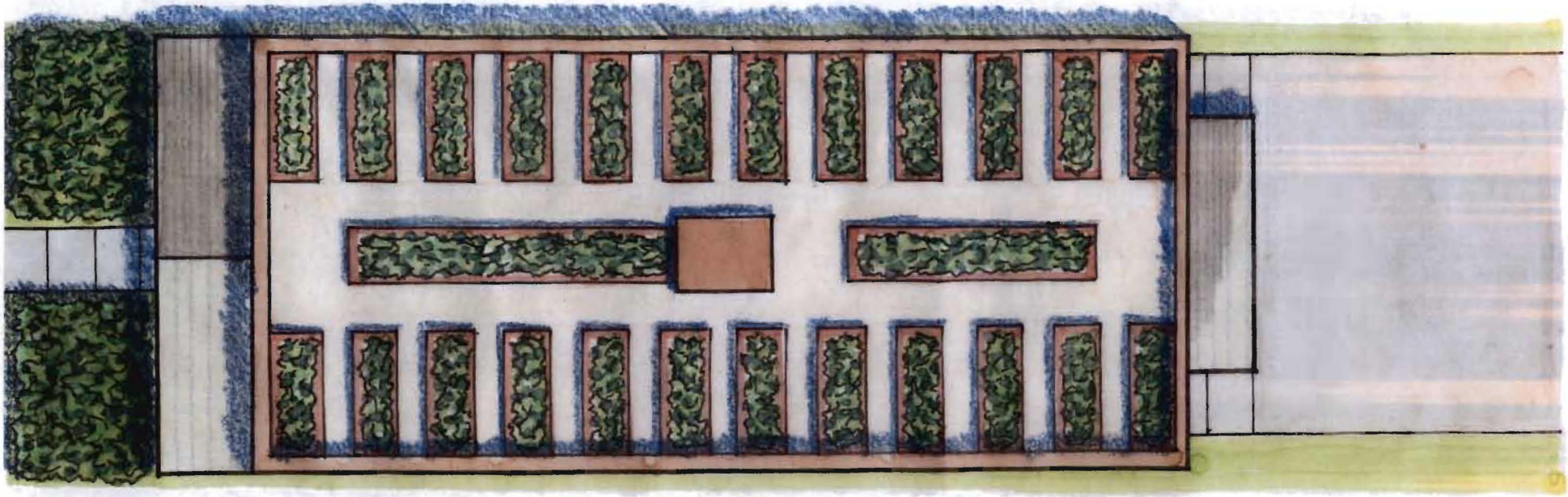
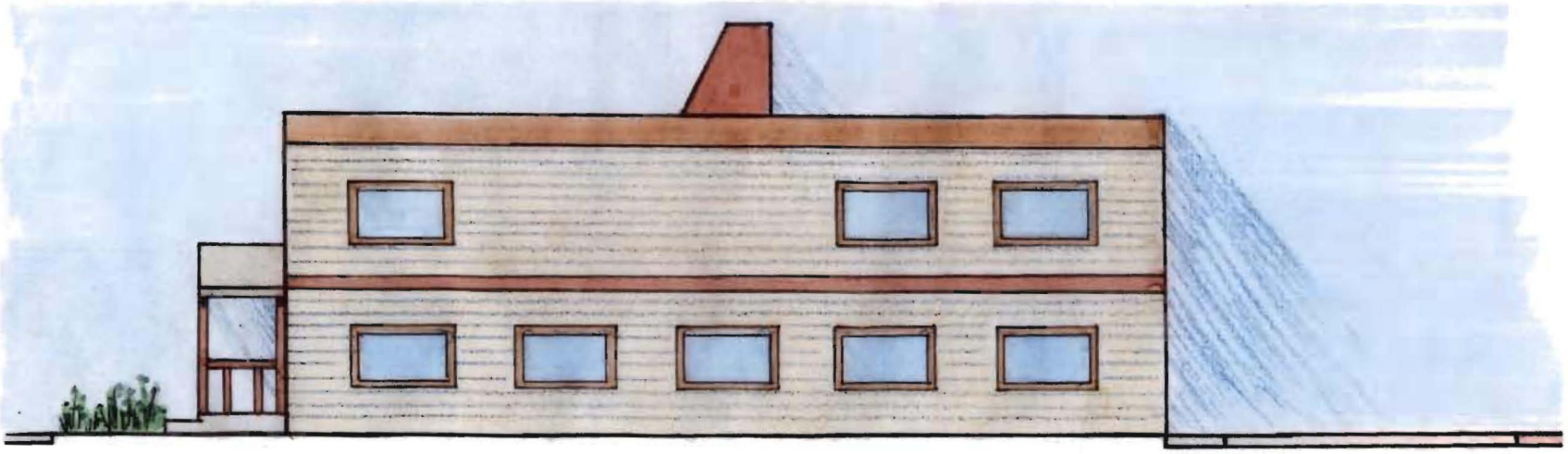


Duplex Option #1

Plan



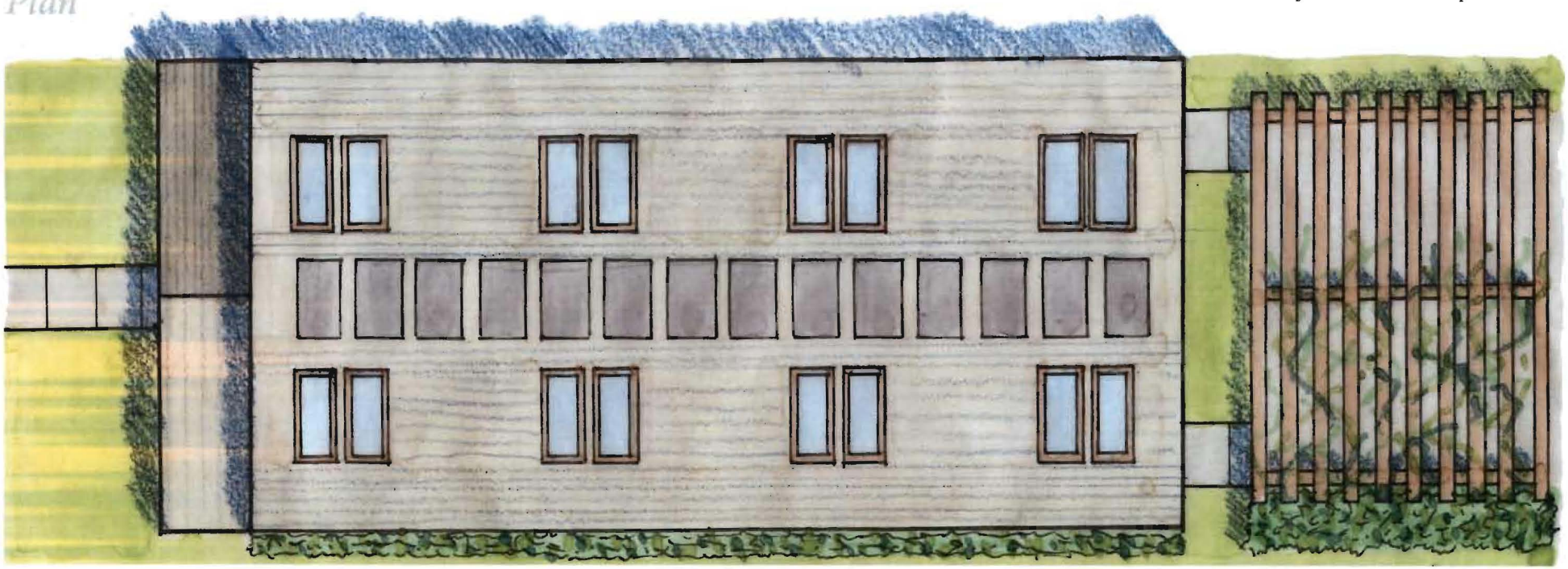
Side Section



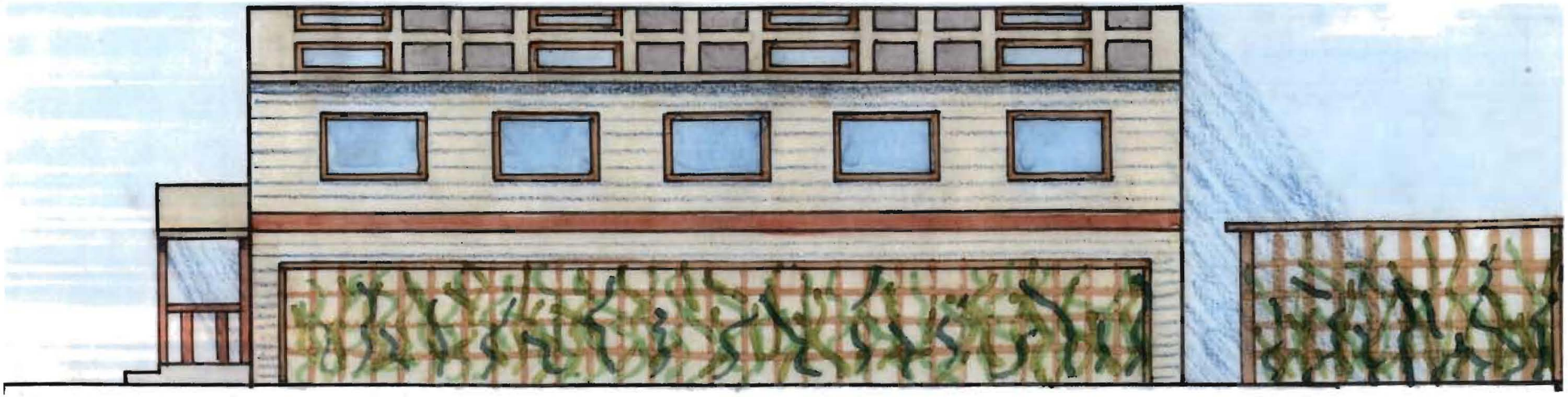
Duplex Option #2

Plan

*Uses adjacent lot for food production



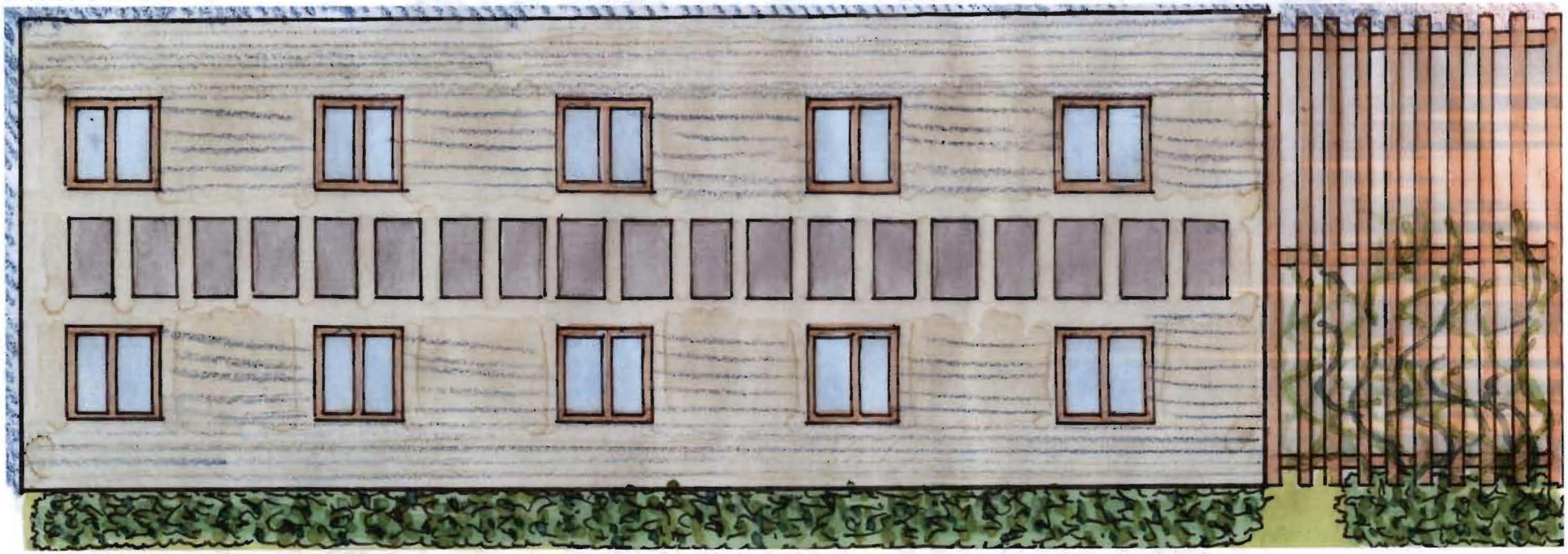
Side Section



Triplex Option #1

*Uses adjacent lot for food production

Plan

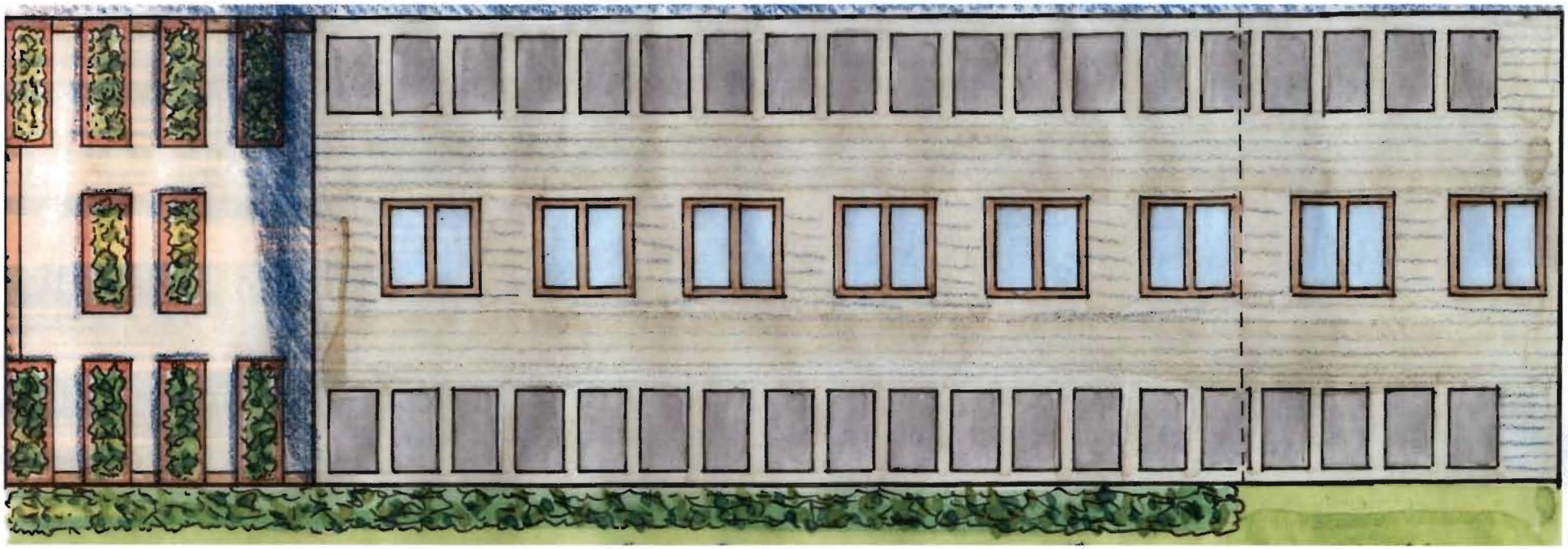


Side Section

Triplex Option #2

Plan

*Uses adjacent lot for food production



Side Section

Works Cited

Ackerman-Leist, Philip. *Rebuilding the Foodshed: How to create local, sustainable, and secure food systems*. White River: Chelsea Green Publishing, 2013.

Bolund, Per, and Sven Hunhammar. "Ecosystem Services in Urban Areas." Ecological Economics 29 (1999): 293–301.

Brown, Kate, and Andrew Jameton. "Public Health Implications of Urban Agriculture." Journal of Public Health Policy 21 (2000): 20–39.

Brown, Lester R. *Full Planet, Empty Plates: The New Geopolitics of Food Scarcity*. New York: W. W. Norton & Co., 2012.

Camilloni, Ines, and Vicente Barros. "On the Urban Heat Island Effect Dependence on Temperature Trends." Climate Change 37 (1997): 665–681.

Cockrall-King, Jennifer. *Food and the City: Urban Agriculture and the New Food Revolution*. New York: Prometheus, 2012.

Driessnack, Martha. "Children and Nature Deficit Disorder." Journal for Specialists in Pediatric Nursing 14 (2009): 73–75.

Earthworks Urban Farm. 2008. Capuchin Food Kitchen. 16 Nov. 2013 <http://www.cskdetroit.org/EWG>.

Fitter, Alastair. "Are Ecosystem Services Replaceable by Technology?" Environmental Resource Economics 55 (2013): 513–524.

Gober, Patricia, et al. "Using Watered Landscapes to Manipulate Urban Heat Island Effects." Journal of the American Planning Association 76 (2010): 109–121.

Hantz Woodlands. 2013. Hantz Farms Detroit. 16 Nov. 2013 <http://www.hantzfarmsdetroit.com/>.

Li, Xiaoma, et al. "Spatial pattern of greenspace affects land surface temperature: evidence from the heavily urbanized Beijing metropolitan area, China." Landscape Ecology 27 (2012): 887 – 898.

Loughner, Christopher, et al. "Roles of Urban Tree Canopy and Buildings in Urban Heat Island Effects: Parameterization and Preliminary Results." American Meteorological Society 51 (2012): 1775–1793.

Louv, Richard. *Last Child in the Woods*. North Carolina: Algonquian, 2005.

Mendes, et al. "Using Land Inventories to Plan for Urban Agriculture." Journal of the American Planning Association 74 (2008): 435–449.

Thibert, Joel. "Making Local Planning Work for Urban Agriculture in the North American Context: A View from the Ground." Journal of Planning Education and Research 32 (2012): 349–357.

Travaline, Katharine, and Christian Hunold. "Urban Agriculture and Ecological Citizenship in Philadelphia." Local Environment 15 (2010): 581–590.

Turner, Kimberly. *Botany for Designers: A Practical Guide for Landscape Architects and Other Professionals*. New York: W. W. Norton & Company, 2011.

United States. Environmental Protection Agency. "Heat Island Effect." 2013. 14 Nov. 2013 <http://www.epa.gov/hiri/>.

"Ecosystem Services." Wikipedia. Wiki posting. 31 Aug. 2013. Wikimedia Foundation. 27 Oct. 2013. < http://en.wikipedia.org/wiki/Ecosystem_services>.

"Urban Heat Island." Wikipedia. Wiki posting. 11 Oct. 2013. Wikimedia Foundation. 14 Nov. 2013 <http://en.wikipedia.org/wiki/Urban_heat_island>.

Withgott, Jay, and Scott Brennan. *Environment: The Science Behind the Stories*. San Francisco: Benjamin Cummings, 2011.

Zimmermann, Petra. Lecture. Geography 332. Ball State University. 28 Apr. 2013.